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INDUSTRIAL ORGANIZATION AND MANAGEMENT SERIES  
L. C. MORROW, *Consulting Editor*

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JOB EVALUATION AND EMPLOYEE RATING

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McGraw-Hill  
INDUSTRIAL ORGANIZATION AND MANAGEMENT SERIES

L. C. MORROW, *Consulting Editor*  
*Consulting Editor, Factory Management and Maintenance*  
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# *Job Evaluation and Employee Rating*

BY

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TO  
A. L. S.  
AND  
D. G. M.



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## PREFACE

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One of the most perplexing problems faced by most concerns in connection with industrial relations is the determination of an equitable basis for the distribution of the amount of money available for wages and salaries. Hearings before the War Labor Board during the war clearly indicated that a large proportion of individual companies have no systematic policies or procedures to cope with this situation. However, during past years, through the efforts of a few leading consultants, trade associations, and private concerns, sound plans for wage and salary determination and administration have been developed, installed, and effectively utilized to assist both labor and management.

The sole purpose of this book is to analyze the major types of plans currently utilized for this purpose, to discuss the questions of policy that must be settled before embarking on a program, and to present the procedural aspects of at least one sound plan in sufficient detail to facilitate its adoption by any concern desirous of so doing.

It should be pointed out, however, that no program of this nature can be installed in a vacuum. Various aspects of legislation, collective bargaining, and internal wage relationships must be considered prior to the installation of any program. The provisions of local, state, and national legislation pertaining to wages, such as the Walsh-Healey Act and the Fair Labor Standards Act, should be checked to assure compliance. If the employees of a concern are represented by a recognized bargaining agent, the provisions of the labor agreement must be considered and the program sold to the employees and their representatives. Finally, the probable internal effects of the installa-

tion should be carefully analyzed on a strictly factual basis before the program is placed in effect.

In compiling this book the authors have drawn heavily on the works of many leading consultants, trade associations, research organizations, and specific industrial or commercial concerns and greatly appreciate their permission to use this material. In addition, thanks are extended to Virginia R. Adler and Joan Taylor for assisting in the typing of the manuscript.

Needless to say, the viewpoints expressed herein are solely those of the authors and do not necessarily represent the policies or procedures of their company.

RICHARD C. SMYTH.  
MATTHEW J. MURPHY.

BAITIMORE, MD.,  
*April, 1946.*

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*Part One*  
Job Evaluation



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## CHAPTER I

### PURPOSE AND SIGNIFICANCE

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Monetary income is the most important phase of the employee-employer relationship. As prerequisites to sound industrial relations, the individual employee (1) should receive an absolute amount of income sufficient to sustain him and his dependents adequately and (2) should feel generally satisfied with the relationship between his income and the incomes of other persons performing the same class of work in the concern and in the community or industry.

The absolute amounts of money available within any firm for distribution as wages and salaries during any given period of time are influenced by many factors, prominent among which are the following:

1. The general economic conditions prevailing in the country (or area)
2. The amount and per cent of profit of the concern
3. The customs of the concern or industry
4. Legislation, especially as affecting wages and hours
5. Taxation
6. Collective bargaining

Although the foregoing are vitally important as determiners of general wage and salary levels, it is not within the province of a treatment of wage and salary determination and administration to attempt to analyze or determine ways and means of increasing or decreasing the absolute amount of money that is available for distribution. On the contrary, the primary objective of such a program is to ensure the equitable distribution of what is available as a result of the operation of the items previously mentioned. To put it more specifically, the program has the objective of seeing that each employee is equitably compensated for

the service he renders to the organization on the basis of

1. The nature of the work performed
2. The current competitive value of that type of work in the community or in the industry
3. The effectiveness with which the work is performed

Broadly speaking, the first two of these objectives are closely related to job evaluation while the third is essentially synonymous with merit rating. However, all three objectives are intimate parts of a unified whole and should be considered in relation to one another since jointly they constitute the crux of any firm's program of wage and salary determination and administration.

### Importance

Industry is vitally concerned with control—of costs, production, materials, etc. Time study, for example, provides data for the control of costs and may in addition provide the basis for stimulating production through the application of wage incentives (another form of control). Cost accounting provides a system or method for the analysis of operating expense, which in turn makes it possible to keep the various phases of a business equitably functioning within predetermined (budgeted) limits. In a sense, job evaluation and merit rating, since they provide a type of control mechanism that fulfills a generally similar function, are the cost accounting and time study of wage and salary determination and administration.

It is unfortunate that even today many industrial organizations have no systematic controls which permit the equitable distribution of the sums of money available for wages and salaries. Consequently, disproportionate variations exist between the rates of pay of employees working on the same job either within the same concern or between concerns in the same neighborhood or industry. One example is cited by C. Canby Balderston<sup>1</sup> in which rates

<sup>1</sup> C. CANBY BALDERSTON, "Wage Setting Based on Job Analysis and Evaluation," p. 4, Monograph No. 4, Industrial Relations Counselors, Inc., New York, 1943.

of pay for work of similar difficulty varied so widely that the most liberally paid employee received as much as two and occasionally three times the lowest salary paid for the same grade of work (all in one concern). In another instance it was found that<sup>1</sup> " . . . the rates on one job evaluated at 495 points ranged from 62 cents to \$1.05 for the 21 employees. On the other hand, a job of comparable difficulty (498 evaluation points) paying the same minimum had a top rate of only 78 cents among the 24 employees."

Conditions such as the above, when they exist, become well known to the employees working in the concern involved. It is clearly impossible to justify such an obvious lack of consistency and logic and consequently widespread employee dissatisfaction results. Actually, in terms of power to generate dissatisfaction and contention, the absolute amount of an employee's income is not so important as the relative amount, *i.e.*, the relationship between the employee's wage and the wage received by others performing the same class of work either in the same concern or elsewhere in the community.

The following<sup>2</sup> is a particularly cogently phrased statement of this problem, for the reason that it comes from representatives of labor who have seen the impact of the problem on their own affairs as well as on management's:

Wage inequalities are as old as modern industry itself. The complete absence of a rational foundation for the wage structure; the unrestricted freedom of foremen to say to one of their employees, "I'll give you a nickel raise if you don't tell anyone else"; the subversion of the rewarding-employees-for-merit policy into a seething system of shop politics; and the several other practices contributing to wage inequalities have made them the serious problem that they are today. Management is finding

<sup>1</sup> ROBERT D. GRAY, "Systematic Wage Administration in the Southern California Aircraft Industry," p 4, Monograph No. 7, Industrial Relations Counselors, Inc., New York, 1943.

<sup>2</sup> C. S. GOLDEN and H. J. RUTTENBERG, "The Dynamics of Industrial Democracy," p 170, Harper & Brothers, New York, 1942.



them expensive to solve, and unions are finding them difficult to handle.

### **Nature and Scope of a Program of Wage and Salary Determination and Administration**

In order to establish a wage structure on a sound basis it is necessary to lay out a complete program and to correlate each phase with the over-all plan. Little is accomplished by setting up only part of a program or by attacking the problem in a piecemeal fashion. Basically, the establishment of an effective program involves the following phases:

1. **Orientation.**—This consists mainly of becoming thoroughly familiar with the theory and history of job evaluation, with special emphasis on the various types of plan available for use. This is essential if naive and unnecessary errors are to be avoided.

2. **Designing the Job-evaluation Plan.**—Once the background information has been acquired, it is possible to proceed to a consideration of the specific plan to be used for the appraisal of each job as to its relative difficulty and responsibility, which is the essence of job evaluation. The very first thing that should be done is to determine what general classes of jobs are to be covered by the plan since the plan must be adapted to the conditions prevailing in the firm using it. The type of plan to be used must then be determined, and a plan must either be designed or be borrowed from some outside source and modified as required.

3. **Job Descriptions.**—A definition or description in some detail must be prepared for each job existing in the concern.

4. **Installing the Job-evaluation Plan.**—All the jobs described should be evaluated according to the plan and whatever accompanying procedures were established at the time it was designed.

5. **Classifying the Employees.**—This consists of determining which job title should be applied to each employee.

It can be done prior to the actual evaluation of the jobs or even without ever evaluating the jobs, but it is useful and logical primarily when done directly in conjunction with the evaluation.

**6. Making a Labor-market Wage Survey.**—When the jobs have been described and evaluated and all the employees have been properly classified, the next problem becomes that of comparing the rates or salaries paid by the company with those paid for the same jobs by other companies in the community or in the balance of the industry. This is desirable, as has already been mentioned, because the *relative* wage or salary rates paid should be given due weight in arriving at a decision as to the most equitable rate structure for the firm.

**7. Determining the Wage or Salary Scales.**—Setting the results of the labor-market wage survey against the existing wage or salary scales within the firm provides the basis for final decisions as to what the precise nature of the company's scale or scales shall be.

**8. Maintaining the Job-evaluation Plan.**—Once the jobs have been "priced," the difficult and important task of maintaining the plan should be carried on as a continuing activity. New jobs should be evaluated as they are created, old jobs reevaluated as they change, employee classifications "policed" for accuracy, and wage surveys made from time to time to check the wage structure.

**9. Determining Wage-administration Policies and Procedures.**—Coincidentally with all of the foregoing, many very significant questions as to policy and procedure should be resolved and given formal expression. For example, rules and regulations should be set up and effectuated pertaining to the amount and frequency of rate or salary increases, the conditions under which promotions, demotions, or transfers may occur, and the like.

**10. Merit Rating.**—In addition to the above-mentioned items, a procedure should be established for the appraisal of the relative worth of each employee to the organization

contacts every effort should be made to meet and to counter successfully all evidences of negative reaction. After a definite plan has been set up and after basic policies have been determined, similar "sales" and educational contacts should be made once again so as to explain thoroughly just what is required and why. Needless to say, the job-evaluation and merit-rating plans and all significant procedures and policies of which management needs to be aware should be put in writing and distributed after approval by top management.

During the process recommended above, it is inevitable that a high degree of realistic common sense will be required, especially if the firm has lacked a formal program in the past. It must be understood that habits and customs of many years' duration cannot always be altered at a moment's notice, nor will a firm necessarily desire to alter certain of its existing practices radically, merely because they do not tie in with the program. Compromises undoubtedly must be made, but this should be considered as part of the job of setting up a tailor-made program for the individual firm.

In addition, the support of the employees affected by the plan and of their representatives must be secured if the plan is successfully to avoid bogging down in countless petty differences and grievances.

Although the development, installation, and maintenance of an adequate and successful program of wage and salary determination and administration are difficult to accomplish, the benefits to be derived by both management and labor in terms of harmonious industrial relations make the venture well worth while.

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## CHAPTER II

# RANKING AND GRADING METHODS OF JOB EVALUATION

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### Introduction

The job-evaluation plan finally selected by any concern will become the heart of its program of wage and salary determination and administration. Consequently, before selecting any given plan for any specific concern, all the basic types of plan available should be carefully reviewed in order to determine the one that is best suited to the needs of the company in question. It should be recognized at the outset that job evaluation is not a panacea for all industrial ills but simply a systematic and orderly process for determining the relative difficulty and responsibility of the different jobs in any concern.

Formal job-evaluation plans of one type or another have been seriously used for over 25 years.<sup>1</sup> During this time the various plans have been considerably refined and new and successful ones have been developed. At present job evaluation is as accepted and as significant in the field of management as are time study and wage incentives. A recent survey<sup>2</sup> indicated that 36 out of 51 well-known concerns (70.6 per cent) were using a job-evaluation plan.

All job-evaluation plans in use today fall into one of four basic categories: (1) the ranking method, (2) the grading method, (3) the factor-comparison method, and (4) the point method.

<sup>1</sup> C. CANBY BALDERSTON, "Wage Setting Based on Job Analysis and Evaluation," pp. 11, 12, Monograph No. 4, Industrial Relations Counselors, Inc., New York, 1943.

<sup>2</sup> R. C. SMYTH and M. J. MURPHY, *How Industry Is Using Time Study and Incentives*, *Factory Management and Maintenance*, vol. 103, No. 1, January, 1945.

### The Ranking Method

The ranking method of job evaluation was the earliest method used.<sup>1</sup> In this method a committee is asked to rank all jobs to be evaluated from highest to lowest with respect to their relative difficulty and responsibility. To facilitate the process and to ensure greater accuracy, it is customary to write the titles of the respective jobs that are to be ranked on 3- by 5-in. cards, with a set of these cards for each committee member. Each member is then asked to rank the cards in order from the highest job (e.g., possibly toolmaker) to the lowest (e.g., possibly janitor). In performing such a ranking it is usually easier first to identify the extremes and then to work from both extremes toward the middle. After the ranking is completed, the cards are collected and the process is repeated by the same committee on two more occasions at intervals of about a week.

#### EXAMPLE OF JOBS ARRANGED IN RANK ORDER

Rank Order	Job Title
1	Tool and diemaker A
2	Tool inspector A
3	Machinist
4	Carpenter A
5	Pipe fitter A
6	Machinist B
7	Turret-lathe operator A
8	Inspector B
9	Expediter
10	Painter
11	Carpenter B
12	Engraver
13	Utility inspector
14*	Truck driver
14	Milling-machine operator B
16	Assembler

\* In case of ties in ranking, equal values are assigned to each job

The rank order of the job is finally determined by averaging the respective rankings of all the committee members.

<sup>1</sup> EDWARD N. HAY, *Conference Board Management Record*, vol. 6, No. 4, p. 87, April, 1944, National Industrial Conference Board, Inc.

Thus, if the committee consisted of 10 persons and the jobs were ranked on three separate occasions, the final rank would be calculated on the basis of 30 different estimates. An example of a set of rankings as determined by this method is illustrated in the table on page 12.

### The Grading Method

The grading (zoning or classification) method of job evaluation consists basically of the development of groups or levels of functions into which the jobs are classified. The first step in the evolution of such a plan is to analyze the jobs to be evaluated and to determine the basic types of jobs that are involved. Each type of job should then be labeled and carefully defined. A good example of this lies in the grades of salaried jobs established by the Westinghouse Electric Corporation. These grades and their definitions are shown in the tabulation on page 14.<sup>1</sup>

After the grades have been identified and defined, the committee responsible for the activity should carefully consider each job and place it in the appropriate grade as determined by a comparison of the description of the job and the definition of the grade.

It is evident that after the jobs have been segregated into the appropriate grades there is still the possibility that further refinement may be desired. If so, the jobs within each grade may be ranked, using the procedure previously described, in order to determine more adequately the existing relationships. This procedure will probably yield more reliable results than either the pure ranking or grading methods, used independently.

Difficulties encountered with the use of the ranking and grading methods of job evaluation resulted in the development of other plans which were based upon the principle of breaking jobs into their component factors and evaluat-

<sup>1</sup> *Industrial Relations Manual*, Part 1, Sec. 1, p 4, Jan 10, 1940, Westinghouse Electric Corporation (issued originally May 15, 1934, and subsequently revised at various intervening dates).

- Grade 1. Unskilled... . . . . The positions of this group, mostly clerical in character, require accuracy and dependability, but no extended training. Office boy, record clerk, and file clerk
- Grade 2. Skilled . . . . . The positions of this group, mostly clerical in character, require training of hand or mind. The group includes such positions as stenographer, production clerk, detail draftsman, and ledgerman. Among the nonclerical positions of this group are laboratory assistant, power-plant operator, and demonstrator
- Grade 3. Interpretative . . . . . The positions of this group call for ability to classify work and apply established procedures to its accomplishment. Many of the positions are clerical, such as correspondents; but others are non-clerical, such as foremen, laboratory assistants, and layout draftsmen  
In most positions of this group the work is nonsupervisory in character. In the highest positions the work is supervisory and involves little or no substantial amount of work of the same kind as that done by those supervised. Illustrations are chief clerk, office manager, foreman
- Grade 4. Creative..... The positions of this group are those of a creative character such as engineer, salesman, staff supervisor, attorney, system designer, and working group leader and section supervisor within these fields of activity
- Group 5. Executive... . . . . The positions of this group are those of department manager, local sales manager, superintendent, general foreman, and the assistant managers and superintendents of large departments. The function is that of departmental management in the broad sense
- Grade 6. Administrative..... The positions of this group involve responsibilities of large magnitude or over-all character or for mixed functional division, such as division manager, district sales manager, of high-order functional character, such as accounting director, chief or consulting engineer, director of research, treasurer, general manager of

purchases and traffic, and general works  
manager

Grade 7. Policy..... The positions of this group are those of the  
senior elected policy officers of the  
company

ing them in terms of those components. This is merely the technique of subdividing a complex problem into its parts so that it may be more readily resolved. The final evaluation of each job results then in the sum of the answers received for the various factors or component parts. Since by this approach some of the judgmental errors are compensated for, the result is a more accurate and homogeneous answer.



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## CHAPTER III

# FACTOR-COMPARISON METHOD OF JOB EVALUATION

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The factor-comparison method of job evaluation " . . . was originated (in 1926)<sup>1</sup> under the late Thomas E. Mitten at the Philadelphia Rapid Transit Company largely by Eugenc J. Bengé. . . ."<sup>2</sup> In the intervening years the plan has been adopted by numerous companies prominent among which are the Atlantic Refining Company and the Pennsylvania Company.

Basically, the factor-comparison method of job evaluation determines the relative rank of the jobs to be evaluated in relation to a monetary scale. This is accomplished by

1. Determining the factors to be used in the plan
2. Selecting between 15 and 25 key jobs
3. Ranking these jobs under each of the factors in the plan
4. Apportioning the average rate currently paid each key job among the factors of the plan
5. Adding supplementary key jobs to the scale just developed
6. Evaluating the balance of the jobs

### Determining the Factors to Be Used in the Plan

. . . most installations in which the factor-comparison method of evaluation is employed utilize five critical factors: mental requirements; skill requirements; physical requirements; responsibility; working conditions. In some special cases those factors may be combined or further broken down. For example, in

<sup>1</sup> EUGENE J. BENGÉ, "Job Evaluation and Merit Rating," p. 21, National Foremen's Institute, Inc., Deep River, Conn., 1941

<sup>2</sup> EUGENE J. BENGÉ, SAMUEL L. H. BURK, and EDWARD N. HAY, "Manual of Job Evaluation," p. ix, Harper & Brothers, New York, 1941.

hazardous industries, it might be advantageous to break down the working conditions factor into surroundings and hazards.<sup>1</sup>

Each of these five factors should be explicitly defined to facilitate subsequent evaluation. Definitions that have been prepared by Mr. Bengtson are illustrated in the accompanying outline.

#### DEFINITIONS OF FACTORS USED IN FACTOR-COMPARISON METHOD OF JOB EVALUATION\*

1. Mental requirements, either the possession of, and/or the active application of, the following:
  - a. Inherent: mental traits such as intelligence, memory, reasoning, facility in verbal expression, ability to get along with people, and imagination
  - b. Acquired: general education, such as grammar and arithmetic; or general information as to sports, world events, etc.
  - c. Acquired: specialized knowledge such as chemistry, engineering, accounting, and advertising.
2. Skill:
  - a. Acquired: facility in muscular coordination, as in operating machines, repetitive movements, careful coordinations, dexterity, assembling, sorting, etc.
  - b. Acquired: specific job knowledge necessary to the muscular coordination only; acquired by performance of the work and not to be confused with general education or specialized knowledge. It is very largely training in the interpretation of sensory impressions. Examples are:
    - (1) In operating an adding machine, the knowledge of *which key* to depress for a subtotal would be skill
    - (2) In automobile repair, the ability to determine the significance of a certain knock in the motor would be skill
    - (3) In hand-firing a boiler, the ability to determine from the appearance of the fire bed how coal should be shoveled over the surface would be skill
3. Physical requirements:
  - a. Physical effort, as sitting, standing, walking, climbing, pulling, lifting, etc.; both the amount exercised and the degree of the continuity should be taken into account
  - b. Physical status, as age, height, weight, sex, strength, and eyesight
4. Responsibilities:
  - a. For raw materials, processed materials, tools, equipment, and property
  - b. For money or negotiable securities

\* EUGENE J. BENGTSON, "Job Evaluation and Merit Rating," National Foremen's Institute, Inc., Deep River, Conn., 1941.

<sup>1</sup> *Ibid.*, p. 99.

- c. For profits or loss, savings, or methods' improvement
- d. For public contact
- e. For records
- f. For supervision

- (1) Primarily the complexity of supervision *given* to subordinates, the number of subordinates is a secondary feature. Planning, direction, coordination, instruction, control, and approval characterize this kind of supervision
- (2) Also, the degree of supervision *received*. If jobs *A* and *B* gave no supervision to subordinates, but *A* received much closer immediate supervision than *B*, then *B* would be entitled to a higher rating than *A* in the supervision factor. To summarize the four degrees of supervision:
  - Highest degree gives much, gets little
  - High degree gives much, gets much
  - Low degree gives none, gets little
  - Lowest degree gives none, gets much

5 Working conditions:

- a. Environmental influences such as atmosphere, ventilation, illumination, noise, congestion, fellow workers, etc.
- b. Hazards—from the work or its surroundings
- c. Hours

## Selecting between 15 and 25 Key Jobs

The first step in the development of the scale or measuring stick, by means of which jobs are later evaluated under the factor-comparison method, is to select a group of from 15 to 25 key jobs.

The key jobs so selected should range in rate from somewhere near the lowest paid job to be covered . . . to approximately the highest. All [key] jobs should be susceptible of exact and well-understood definition, and no job should be included in the key position list if there is any disagreement about the existing rate. Moreover, these rates should be comparable with competitive rates. If there is any doubt as to the selection of the key jobs from the point of view of market rate comparison, a labor market survey of key job rates should be made. . . .<sup>1</sup>

It is customary to have the key jobs selected by a committee designated for the purpose. The same committee usually subsequently evaluates them in the organization.

<sup>1</sup> *Ibid.*, p. 105.

### Ranking the Key Jobs under Each of the Factors

When the key jobs have been selected each member of the committee should be furnished with a complete description of each of the key jobs and a list of the definitions of each of the factors of the plan.

At this point the chairman of the committee should make sure that all committee members understand and agree on the factor definitions and are all personally familiar with each of the key jobs. If any of the committee members either are not familiar with some of the key jobs or do not agree with the job descriptions, the entire committee might well visit and observe the jobs concerned to assure agreement and consistency of interpretation.

Each member of the committee should then be supplied with a key-job ranking sheet (see accompanying table).

KEY-JOB RANKING SHEET

Rank order	Mental requirements	Skill requirements	Physical requirements	Responsibility	Working conditions
1	Material mover	Material mover	Timekeeper	Material mover	Timekeeper
2	Janitor	Janitor	Expediter	Janitor	Expediter
3	Truck driver	Timekeeper	Assembler	Assembler	Assembler
4	Assembler	Assembler	Automatic-screw-machine operator	Painter	Material mover
5	Painter	Truck driver	Painter	Truck driver	Janitor
6	Millwright	Expediter	Brake operator	Brake operator	Machinist
7	Brake operator	Painter	Turret-lathe operator	Pipe fitter	Tool- and die-maker
8	Pipe fitter	Pipe fitter	Pipe fitter	Millwright	Turret-lathe operator
9	Turret-lathe operator	Brake operator	Truck driver	Timekeeper	Truck driver
10	Carpenter	Millwright	Carpenter	Turret-lathe operator	Carpenter
11	Machinist	Turret-lathe operator	Janitor	Carpenter	Millwright
12	Timekeeper	Carpenter	Tool- and die-maker	Machinist	Pipe fitter
13	Automatic-screw-machine operator	Machinist	Machinist	Automatic-screw-machine operator	Brake operator
14	Tool- and die-maker	Automatic-screw-machine operator	Millwright	Expediter	Painter
15	Expediter	Tool- and die-maker	Material mover	Tool- and die-maker	Automatic-screw-machine operator

Rank order is listed in the extreme left-hand column on the sheet, the numbers running from 1 upward to the number representing the total number of key jobs selected. If 20 jobs are selected as key jobs, for example, the figures 1 to 20 are entered in the column in ascending order. The next five columns to the right are headed Mental Requirements, Skill Requirements, Physical Requirements, Responsibility, and Working Conditions, respectively. Each member of the committee will rank each job in each of the critical factors in the order of their relative importance and in accordance with his own opinions. In the case of mental requirements, skill requirements, physical requirements, and responsibility, rank 1 in any column should be assigned to the lowest rank in that factor and the highest figure in the rank-order column assigned to the highest rank. In the case of working conditions, rank 1 should be assigned to that job having the most agreeable and least hazardous conditions and the highest rank number to that job having the most disagreeable and most hazardous conditions. The job title or serial number should be recorded on the key-job ranking sheet opposite the appropriate rank number, and under each critical factor heading, in accordance with each committee member's individual judgment.<sup>1</sup>

After each member of the committee has ranked the key jobs by factors, the chairman of the committee "should analyze the returns statistically to determine whether the distribution indicates any misunderstanding among committee members in connection with job content, job conditions, job requirements, critical factor coverage, or definition."<sup>2</sup> He should then discuss all such indications with the group and attempt to iron out any apparent misunderstandings on these scores.

The above process should be repeated at 2-week intervals until the members of the committee have ranked all of the key jobs three different times. The committee then meets again to determine what the final rankings for the key jobs shall be. "Disagreements as to ranking should be

<sup>1</sup> BERGE, BURK, and HAY, *op. cit.*, p. 107.

<sup>2</sup> *Ibid.*, p. 108.

decided by majority vote of the committee. A record of such disagreements and the number of votes for each side should be maintained for future reference in the key-job ranking and evaluation comparison procedure to follow."<sup>1</sup>

### Apportioning the Average Rates Paid Key Jobs by Factors

The next step is to apportion the average rate currently being paid the employees working on each key job among the five factors. In order to facilitate the mechanics of this step a form has been prepared for the use of the committee (see table).

KEY-JOB DATA SHEET

Job title	Mental require- ments	Skill require- ments	Physi- cal require- ments	Re- sponsi- bility	Work- ing condi- tions	Average rate cur- rently paid key job
Assembler .....	17	15	26	14	9	\$0.81
Automatic-screw-ma- chine operator .....	34	40	28	26	25	1.53
Brake operator .....	19	24	29	16	19	1.07
Carpenter .....	26	32	36	21	17	1.32
Expediter .....	39	19	24	28	8	1.18
Janitor .....	12	10	38	8	12	0.80
Machinist .....	29	35	41	22	13	1.40
Material mover .....	9	8	50	6	10	0.83
Millwright .....	18	25	47	18	17	1.25
Painter .....	18	20	28	14	23	1.03
Pipe fitter .....	19	23	33	17	18	1.10
Timekeeper .....	32	11	24	20	8	0.95
Tool and diemaker .....	37	45	40	31	13	1.66
Truck driver .....	14	17	35	16	16	0.98
Turret-lathe operator ..	24	31	33	20	16	1.24

Rated: V.R.A.

Date: 2-22-45

In the extreme left-hand column the jobs should be listed in serial number or alphabetical order. Each of the next five

<sup>1</sup> *Ibid.*, pp. 109, 110.

vertical columns should represent one of the five critical factors. An extreme right-hand column should contain entries showing average wage or salary rate now paid for each key job. Each committee member, acting individually, should be instructed first to make a horizontal breakdown of the going rate shown in the far right-hand column for each job. When this analysis has been completed for all key jobs, each committee member should examine the vertical relationships, *i.e.*, the ranking of the amounts assigned to all jobs under each critical factor. Following this examination each member should make whatever changes are necessary in the horizontal relationships in order to establish what he believes to be the correct vertical relationships. Naturally, in the cases of some jobs the member will be unable to find enough money in the total rate to give the rank desired. In other cases there will be too much money in the total rate to hold the jobs in what he believes to be their correct rank order under all critical factors. In such cases he should be instructed to take account of this surplus or shortage in the factor in connection with which he is most in doubt, and indicate this entry by drawing a circle around the amount assigned.<sup>1</sup>

The chairman of the committee will then make a statistical analysis of the results and will request the committee to apportion the average rates by factors a second and a third time at 2-week intervals. The chairman will then average the estimates and report them to the committee.

Amounts circled by the committee members should not be included in the averages. An additional report should be prepared showing a comparison of the agreed-upon ranking and the average evaluation of each key job in each critical factor. Naturally, some discrepancies between agreed-upon ranking and average evaluation will be found.

In cases in which the formerly agreed-upon ranking does not correspond with the average evaluation the committee should spend considerable time discussing such discrepancies and determining whether or not they can be eliminated by slight changes of the averages of the amounts assigned to those jobs in the particular critical factor, whether for some reason the previously

<sup>1</sup> *Ibid.*, pp. 110-112.

agreed-upon ranking was in error or whether the committee agrees that the discrepancy is too great to be adjusted arbitrarily. In those cases in which the committee cannot agree on the proper adjustment to bring ranking and evaluation into line, the jobs should be discarded as key positions. This may mean the loss of as high as one-third of the total number of key jobs.<sup>1</sup>

### Adding Supplementary Key Jobs to the Scale

Five separate measuring sticks or scales are now available, one for each factor (see table). However, each scale will contain gaps of varying width between key jobs on that scale. In order to fill in the longest of these gaps both to make the scale more useful in practice and to provide a check on the validity of the key jobs, supplemental key jobs should be added to the scale.

A list of additional jobs chosen at random from among all departments represented . . . should be prepared. The only requirement for such supplementary key jobs is that there be no existing serious controversy as to the rates being paid. The number of supplementary key jobs should be at least twice as many as were included in the original key-job list.<sup>2</sup>

Each of the supplementary key jobs should be evaluated, as previously discussed, by each member of the committee.

Each of the original key jobs should be reexamined by each rater as he rates the supplementary key jobs. Should any differences of opinion arise as a result of this wider comparison, they should be discussed by the rating group and, if necessary, changed by consent of the rating committee.

The results of the evaluation of the supplementary key jobs and the check and reevaluation of the original key jobs should be reported to the other members of the committee. Any changes in the conclusions or findings . . . should be discussed by the committee and agreed on by majority vote. This procedure applies an additional test to the original key-job rating, and a dependable measuring stick for each of the critical factors, containing more points of comparison, will have been provided.<sup>3</sup>

<sup>1</sup> *Ibid.*, pp. 112, 113.

<sup>2</sup> *Ibid.*, pp. 113, 114.

<sup>3</sup> *Ibid.*, p. 115.



## FACTOR-COMPARISON SCALE

Cents	Mental requirements	Skill requirements	Physical requirements	Responsibility	Working conditions
50			Material mover		
49					
48					
47			Millwright		
46					
45		Tool- and die-maker			
44					
43					
42					
41			Machinist		
40		Automatic-screw-machine operator	Tool- and die-maker		
39	Expediter				
38			Janitor		
37	Tool- and die-maker				
36			Carpenter		
35		Machinist	Truck driver		
34	Automatic-screw-machine operator				
33			Turret-lathe operator		
32	Timekeeper	Carpenter	Pipe fitter		
31		Turret-lathe operator		Tool- and die-maker	
30					
29	Machinist		Brake operator		
28			Automatic-screw-machine operator, painter	Expediter	
27					
26	Carpenter		Assembler	Automatic-screw-machine operator	
25		Millwright			Automatic-screw-machine operator
24	Turret-lathe operator	Brake operator	Timekeeper, expediter		
23		Pipe fitter			Painter
22				Machinist	
21				Carpenter	

FACTOR-COMPARISON SCALE — (Continued)

Cents	Mental requirements	Skill requirements	Physical requirements	Responsibility	Working conditions
20		Painter		Turret-lathe operator, timekeeper	
19	Pipe fitter, brake operator	Expediter			Brake operator
18	Painter, millwright			Millwright	Pipe fitter
17	Assembler	Truck driver		Pipe fitter	Millwright, carpenter
16				Truck driver, brake operator	Turret-lathe operator
15		Assembler			
14	Truck driver			Painter, assembler	
13					Tool- and die-maker, machinist
12	Janitor				Janitor
11		Timekeeper			
10		Janitor			Material mover
9	Material mover				Assembler
8		Material mover		Janitor	Timekeeper, expediter
7					
6				Material mover	
5					
4					
3					
2					
1					

### Evaluating the Balance of the Jobs

The next step is for the committee to evaluate the balance of the jobs, using the measuring sticks already developed. The committee determines where on each of the five scales the job should be placed in view of the nature of the job content, the definition of the factor concerned, and the rankings given the other jobs previously evaluated.

After this step is completed for each of the five factors (or scales), the monetary values derived for each factor are added and constitute the relative worth of the job.

### Disadvantages of Working with Monetary Units

Obviously, one of the cardinal features of the factor-comparison system of job evaluation, as developed by Bengé, is the distribution of the current average rate paid the key jobs in order to develop the scale. However, many authorities feel that intermingling money or monetary rates with the job-evaluation procedure is undesirable for the following three basic reasons:

1. The existence of a scale in terms of monetary units means that inevitably the committee members will be influenced by the rate currently paid the job being evaluated, which may in some cases tend to perpetuate existing inequalities.<sup>1</sup>

2. A scale in terms of monetary units imposes mechanical problems and problems of explanation at times of general wage increase or decrease.

3. Expressing the scale in terms of monetary units makes the segregation of job evaluation and collective bargaining over wage rates more difficult.

To overcome this difficulty, a variant of the factor-comparison system has been devised which ignores the existing average rate currently paid the key jobs. This method of job evaluation determines the rank of the jobs

<sup>1</sup> At the 250th meeting of the National Industrial Conference Board in New York on Mar. 23, 1944, Mr D. W. Weed of the General Electric Company stated, "As I see it . . . a job-evaluation system, to be successful, must divorce money from consideration entirely. If you don't do that, you are very likely to be influenced by what you are paying for that particular job. I would much prefer to have people who are putting in a job-evaluation system not know the wage scale that is being paid in the plant. Then they approach the thing objectively and really get the right differences between jobs without regard to what has been built up in the factory as a wage scale. I think there is a very definite advantage in doing it that way." *Conference Board Management Record*, vol. 6, no. 4, p 88, April, 1944, National Industrial Conference Board, Inc.

to be evaluated in relation to a scale consisting of a series of points or abstract mathematical units.

The first three steps in the evolution of this type of plan are identical with the first three steps in the factor-comparison method as developed by Benge. These steps are as follows:

1. Determine the factors to be used in the plan
2. Select between 15 and 25 key jobs
3. Rank the key jobs under each of the factors in the plan

The fourth step in the development and application of this type of plan is to determine the range of points to be assigned to each factor previously selected. To illustrate, assume that the same factors were selected as are used by Benge, in which case the points assigned might be as shown in the accompanying table.

Factors	Range of Points
Mental requirements	0-100
Skill requirements	0-400
Physical requirements	0-100
Responsibility	0-100
Working conditions	0-100

The weightings of the points and the actual range of points to be used for each factor of the plan should be determined as the result of pooling the estimates of each member of the evaluating committee at the time of the development of the scale.

### Development of the Comparison Scale

In the pure (*i.e.*, Benge) factor-comparison method the comparison scale is developed by apportioning the average rate currently being paid each of the key jobs among each of the factors used in the system. In this modification of the system the comparison scale is developed by fitting the rank order of key jobs, as determined for each factor, into the range of points allocated to that factor. As an example, if the range of points for the factor of mental requirements is from 0 to 100 and if the jobs have been

ranked for that factor as illustrated in the table on page 19, then at this time the committee must determine the specific number of points that should be assigned to each of the 15 jobs. In like fashion the number of points is determined by the committee for each key job under each factor.

The steps of adding supplementary key jobs and evaluating the balance of the jobs are the same for this plan as previously discussed in describing the method developed by Bengé.

The best example of this modified type of plan known to the authors is that which has been developed and successfully utilized by the General Electric Company for the past 15 years.<sup>1</sup>

Actually, the only substantial difference between the factor-comparison method developed by Bengé and that developed by the General Electric Company lies in the fact that the former apportions the existing average rate paid each key job among the factors of the plan in order to develop the scale to be used for each factor, while the latter assigns a continuum of mathematical units (points) to each factor and then apportions these points amongst the key jobs in order to develop the scale to be used for that factor.

In Bengé's method, the monetary value of the job is either taken directly from the scale or derived by means of a conversion factor; in the case of the factor-comparison plan developed by the General Electric Company (and also in the case of point plans), the monetary value of the evaluated job can be derived only by the conversion of the points into money.

<sup>1</sup> D. W. WOOD, "Job Evaluation," AMA Production Series No. III, American Management Association, New York, 1938; also private correspondence with Mr. Wood, indicating that the same plan is still successfully in use.

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## CHAPTER IV

### POINT METHOD OF JOB EVALUATION

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What appears to be the first point method of job evaluation was designed by Merrill R. Lott about 1925.<sup>1</sup> All subsequent point plans have been basically patterned after this plan although naturally during the intervening years many refinements have been introduced.

A recent survey indicates that the point method is by far the most frequently used method of job evaluation, and it is also the one used by the majority of the larger companies.<sup>2</sup>

Probably the best known and most widely used specific plan based on the point method is that developed by the National Electrical Manufacturers Association for its members and subsequently adopted by the National Metal Trades Association. Except for some differences in wording, the two plans are identical. The National Metal Trades Association alone has installed the plan in over 500 plants, ranging from small to very large concerns and including job shops, production shops, and companies with single and multiple manufacturing units.<sup>3</sup> The National Electrical Manufacturers Association estimates that, over all, the plan has probably been installed in from 1,200 to 1,500 plants.<sup>4</sup>

Although this is undoubtedly the most widely used and

<sup>1</sup> MERRILL R. LOTT, "Wage Scales and Job Evaluation," The Ronald Press Company, New York, 1926.

<sup>2</sup> R. C. SMYTH and M. J. MURPHY, *How Industry Is Using Time Study and Incentives*, *Factory Management and Maintenance*, vol 103, No. 1, p 113, 1945

<sup>3</sup> Information furnished the authors by the National Metal Trades Association on Feb. 28, 1945

<sup>4</sup> Information furnished the authors by the National Electrical Manufacturers Association on Mar. 16, 1945.

best known point plan, it is by no means the only successful one which has been developed. The General Foods Corporation, Revere Copper & Brass, Inc., United States Steel Corporation, Wright Aeronautical Corporation, American Optical Company, and many other concerns have successfully designed and installed variants of the fundamental point method.<sup>1</sup>

Basically, this method of job evaluation determines the relative worth of the jobs to be evaluated by assigning to each a number of points (arithmetic units). These points are later, of course, converted to money. The procedure for the design of a point plan is as follows:

1. Determine the types of job to be evaluated.
2. Determine the factors to be used in the plan and prepare a suitable definition for each.
3. Determine the number of degrees to be allocated to each factor and prepare a suitable definition for each.
4. Determine the weightings of the factors and assign points to each degree of each factor.
5. Select between 15 and 25 key jobs and evaluate each, using the plan developed.

### Types of Job to Be Covered

The jobs in any concern or plant will range from the top executive (i.e., president, general manager, etc.) on down to janitor or sweeper, or some similar job. Accordingly, the types of job will range from policy making or executive on down through administrative, technical, skilled, and unskilled.

Furthermore, in order to simplify compliance with the provisions of the Fair Labor Standards Act,<sup>2</sup> many concerns have already established separate pay rolls so as to segregate those who are exempt (exempt pay roll) from

<sup>1</sup> See "Job Evaluation—Formal Plans for Determining Basic Pay Differentials," *Report 25*, National Industrial Conference Board, Inc., New York, 1940.

<sup>2</sup> "Wage and Hour Manual," 1943 ed., p. 303, Bureau of National Affairs, Inc., Washington, D. C.

the terms of the act from those who are nonexempt (non-exempt pay roll). The nonexempt pay roll is commonly subdivided into an hourly pay roll (nonexempt hourly paid jobs) and a salary pay roll (nonexempt salary paid jobs). In practice, manual or shop jobs usually appear on the hourly pay roll and clerical jobs on the salary pay roll. In addition, those on the salary pay roll customarily receive certain benefits and privileges not usually extended to those on the hourly pay roll.

In industrial practice, the majority of point evaluation plans are designed specifically for the hourly pay roll.<sup>1</sup> However, very little additional trouble will be encountered in designing a plan that will successfully cover both hourly and nonexempt salary jobs. Recognizing this fact, many concerns have adopted more flexible plans. One good example is that of the General Foods Corporation which uses the same point plan to evaluate all jobs on both the hourly and salary pay rolls, up to jobs receiving \$4,000 per year.

It should be noted that in the foregoing discussion there has been little or no attention paid to the possible application of the point method of evaluation to jobs on the exempt pay roll. There are several reasons for this:

1. The exempt pay roll is made up primarily of executive, administrative, and professional jobs. There are usually only a small number of such jobs in proportion to the total number of jobs in the organization, but characteristically they range widely in variety and degree of specialization. This poses a very real evaluation problem.

<sup>1</sup> The following reasons are the ones most commonly encountered:

1. There are usually larger numbers of employees on the hourly pay roll.
2. Hourly rates of pay tend to become more widely known among the employees, consequently inequities are more apparent, and thus require more attention.
3. Unionization is more widespread among those on the hourly pay roll, which forces management to pay more attention to the elimination of inequities.
4. Jobs on the nonexempt and exempt salary pay rolls are harder to "nail down" and define, which makes it harder to evaluate them.



2. This problem is aggravated by the fact that jobs at this level are much more liable to be influenced by the ambition, character, and personality of their occupants. The contribution of subtle and less tangible considerations is thus materially increased, and this in turn makes it more difficult to write adequate job descriptions.

3. There is no reason to assume that the same factors are worthy of consideration (or of proportionate consideration) for all levels of jobs. In fact, the converse is obviously true. Although, for example, working conditions should be considered for evaluation purposes in the case of manual jobs, this factor has little meaning in the case of executive jobs since the working conditions of all executive jobs are so nearly alike.

Owing to the difficulty of adequately defining policy making, executive, interpretative, and some technical and supervisory jobs, it is not unusual to find that a combination of the grading and the ranking methods of job evaluation is used to determine the relative worth and value to the organization of jobs in these general categories. In view of the previously mentioned practical difficulties and because of the small number of jobs involved, there is no reason why this method of evaluation should not be satisfactory. Regardless, however, of the method used in handling jobs on the higher level, two considerations are worthy of particular attention:

1. Care should be taken to see that the jobs immediately above those covered by a point plan are in proper alignment with the top group of jobs evaluated by the plan.

2. Care should be taken to see that supervisory jobs are in proper alignment with the jobs supervised. Some job-evaluation plans attempt to evaluate the jobs of both shop operators and their supervisors. This procedure cannot always be relied upon in view of the difficulties encountered in actual practice. Supervisory jobs demand a type of responsibility not required by manual or clerical jobs, and they do not require many of the factors which form an

integral part of most other jobs. Furthermore, there is a psychological disadvantage in using the same plan to evaluate the jobs of both groups, since the one group is basically part of labor and the other group is (or should be) part of management.

We are all familiar with instances of supervisors making less per hour (or per week) than the men working for them and also with the fact that usually supervisors work longer hours than the men they supervise. Conditions such as these have tended to stimulate supervisors' interest in unions of their own.

Sometimes a separate evaluation plan is set up for supervisors, but this procedure has the defect that, in addition to the special demands of the job, the supervisor's pay should be related to the pay of the people working for him. From a practical industrial-relations point of view a supervisor must be paid a base rate at least equal to and preferably more than that of the highest paid person working for him.

### Number of Factors to Be Used

After the types of job to be evaluated have been determined, the next step in the development of a point evaluation plan is the determination of the number of factors to be used.

The accompanying table lists eight well-known point plans that utilize from 4 to 15 factors in evaluating hourly paid jobs.

Company or Association	Number of Factors Used in Job-evaluation Plan
General Foods Corporation.....	10
Revere Copper & Brass, Inc. ....	11
United States Steel Corporation .....	15
Cheney Bros. Company . . .	4
Wright Aeronautical Corporation .....	13
American Optical Company . . .	15
National Electrical Manufacturers Association . . . . .	11
National Metal Trades Association. ....	11
Average... . . . .	11.2

The Industrial Management Society job-evaluation plan uses 23 factors. One published point plan recommends the use of 36 different factors;<sup>1</sup> in another case it is reported that a company uses 42 different factors.<sup>2</sup>

Obviously, if too many factors are used the plan will become burdensome and clumsy. Up to a certain point more factors will tend to increase the accuracy of the results since more aspects of a job will be considered and the judgmental errors of the raters will tend to compensate one another. However, it is felt that it is rarely, if ever, necessary or desirable to use more than 15 factors since more than this number will tend to increase the cost of evaluating and, what is more important, may make the plan so complicated that it will be difficult to explain and "sell" to supervisors and employees.

Conversely, too few factors make a plan equally undesirable. If too few are used, some important phase of a job may be slighted in the process of evaluation or the plan may not be able adequately to cover the range of jobs encountered in the average industrial concern. Furthermore, there is a definite psychological advantage in using a reasonable number of factors for evaluation purposes since this tends to reassure supervision and the employees that all aspects of all jobs are being considered.

It is recommended that from 8 to 12 factors be used in designing a point job-evaluation plan. Twelve factors are used in the plan presented herein. However, this plan was designed to evaluate both hourly and nonexempt salary jobs while seven of the eight plans referred to above were designed to evaluate hourly jobs only. If the point plan presented later in this chapter is to be used for the evaluation of hourly jobs only, it is recommended that the factors Responsibility for Confidential Data and Responsibility for Reports and Records be removed. Conversely, if the

<sup>1</sup> M. F. STIGGERS and E. G. REED, "The Theory and Practice of Job Rating," p. 65, McGraw-Hill Book Company, Inc., New York, 1944.

<sup>2</sup> JOHN W. RIEGEL, "Wage Determination," p. 90, Bureau of Industrial Relations, University of Michigan, 1937.

plan were to be used for the evaluation of nonexempt salary jobs only, it is recommended that the factors Responsibility for Tools and Equipment and Responsibility for Material or Product be removed. Actually, all 12 factors could be included in both cases without affecting the validity of the plan (because the weightings are slight), but it is felt that some confusion on the part of the evaluation committee would be avoided by removing these factors under the circumstances described above.

### Specific Factors to Be Used

Care should be exercised in the selection of the specific factors to be used. Experience is by far the most significant and important. In a recent analysis of three actual job-evaluation installations it was found that this factor alone correlated very highly with the final number of points assigned to the jobs concerned (the correlations being .96, .93, and .86).<sup>1</sup>

The table on page 36 shows the frequency of occurrence of various factors appearing in the eight plans already discussed.

The factors selected should fit the needs of the company concerned and should be applicable to the types of job to be evaluated. Factors such as attendance which are common to all jobs to the same extent should not be included. Likewise, factors such as Opportunity for Advancement,<sup>2</sup> Difficulty in Locating Work Elsewhere, Age of Operators, Cost of Living, Existing Rate of the Job, Profits of Company,<sup>3</sup> have no place in a job-evaluation plan since they cannot possibly help to indicate the relative

<sup>1</sup> C. H. LAWRENCE, JR., "Studies in Job Evaluation: II. The Adequacy of Abbreviated Point Ratings for Hourly-paid Jobs in Three Industrial Plants," *Journal of Applied Psychology*, Vol. 29, No. 3, p. 184, 1945.

<sup>2</sup> The factor opportunity for advancement was reported by C. W. LYTLE, "Wage Incentive Methods," p. 25, The Ronald Press Company, New York, 1942.

<sup>3</sup> The factor profits of company was reported by C. W. Lytle to be used by two companies. *Ibid.*

Factor*	Frequency of Occurrence
<b>Skill:</b>	
Experience.....	5
Education.....	5
Skill.....	4
Manual dexterity ..	3
Initiative and ingenuity.....	2
Accuracy.....	2
Resourcefulness.....	1
Total.....	22
<b>Effort:</b>	
Physical effort.....	6
Mental effort.....	4
Visual effort.....	2
Fatigue.....	1
Total.....	13
<b>Responsibility:</b>	
Responsibility for equipment.....	4
Responsibility for material or product.....	3
Responsibility for work of others.....	3
Responsibility for safety of others.....	2
Responsibility for quality.....	2
Responsibility.....	2
Total.....	10
<b>Job conditions:</b>	
Working conditions.....	6
Hazards of the job.....	5
Expense to operator (clothes, tools, etc.).....	2
Monotony.....	2
Total.....	15
<b>Miscellaneous:</b>	
Cooperation.....	2
Details.....	2
Versatility.....	1
Attendance.....	1
Cost of errors.....	1
Honesty of effort.....	1
Effect on other operations.....	1
Difficulty in locating work elsewhere.....	1
Total.....	10

\* Factors with the same meanings have been grouped under the one heading wherever possible.

significance of the various jobs to be evaluated. An analysis of the types of job to be evaluated should be made to determine which factors are common to the jobs involved and which factors (if any) should be included in the plan

either for psychological reasons or to assure that some important aspect of one or more unusual jobs will be considered.

### **Definitions of Factors**

After the factors to be included have been selected, it is necessary to prepare explicit definitions of each in order that all persons using the plan after it is placed in effect will have the same mental concept of exactly what aspects of any job are covered by each of the factors. This is vitally important in order to avoid confusion in subsequent job-evaluation committee meetings and to make it easier to handle any grievances that may be raised by the employees or their representatives. In addition, highly objective definitions go far toward helping to assure a greater degree of consistency in the application of the plan throughout the organization.

To achieve this result, definitions of factors should be written as positive statements and should be expressed in simple language. Care should be taken to assure that the nomenclature of the industry, if used, is used correctly.

### **Determination of Degrees**

Each factor of the job-evaluation plan is characteristically subdivided into degrees. This might be likened to the subdivision of the foot ruler into inches to facilitate the measuring of any object. Most point plans use from four to eight degrees per factor. The smaller the number of degrees used, the greater is the danger that the plan may not adequately reflect, for the factor involved, the range of differences existing in the various jobs. If seven or more degrees are used, it will be found that it is extremely difficult, owing to the limitations of language and of the average person's vocabulary, to define each degree specifically enough to indicate a meaningful difference between successive degrees. The use of an odd number of degrees is undesirable because of the inclination of the average person to select the median of a range of choices (central tendency)

degree as points, the sum of which for any job will exceed the rate of pay of the job sufficiently to avoid any suggestion that points and money are synonymous.

One practical procedure for the assigning of points to degrees is as follows:

1. Have the committee determine the weightings of the factors in terms of percentages, estimating what part of 100 per cent should be allocated to each factor. After these estimates have been made, they should be compared with the weightings of the factors used in other successful plans. Then the weightings of the individual committee members should be discussed by the whole group. Undoubtedly, as a result of this discussion, some committee members will want to modify their original estimates. After this, the weightings of the committee members can be averaged to determine finally how the 100 per cent should be apportioned among the factors. As a result of this, the percentage that is assigned to Education by the committee will, expressed as a whole number, become the number of points for the first degree of that factor. In turn, the percentage (expressed as a whole number) that is assigned to Experience will become the number of points for the first degree of the factor Experience, and so on.

2. To determine the number of points to be allocated to the succeeding degrees of each factor, it is necessary merely to extend the points assigned to the first degree in an arithmetic progression over all degrees of that factor. Thus, if seven points were assigned to the first degree of a given factor (in a plan using six degrees), the points assigned to the succeeding degrees of that factor would be as follows:

	Degrees					
	1	2	3	4	5	6
Points	7	14	21	28	35	42

COMPARISON OF FIVE JOB-EVALUATION PLANS UNDER MAJOR ELEMENTS: SKILL, EFFORT, RESPONSIBILITY, AND JOB CONDITIONS

Major element	Plan 1*	Relative weight, per cent	Plan 2*	Relative weight, per cent	Plan 3*	Relative weight, per cent	Plan 4*	Relative weight, per cent	Plan presented in this book	Relative weight, per cent
Skill	Mentality Skill	12 5	Skill dexterity Efficiency or mental develop- ment Experience and training	23	Basic education Experience re- quired Aptitude	18 5	Education Experience Initiative and in- genuity	14	Education Experience Initiative	15
		50		10		18 5		22		25
		62 5		45		23 0		14		15
Effort	Manual applica- tion Physical applica- tion	6 25	Mental effort Physical effort	10	Physical applica- tion demand Mental applica- tion demand Visual applica- tion demand	7 4	Physical demand Mental or visual demand	10	Physical effort Mental effort Visual effort	6
		6 25		16		7 4		5		6
		12 5				7 4		15		18
Responsibility	Responsibility	12 5	Responsibility	24	Responsibility for equipment Responsibility for product Responsibility for safety Responsibility of others	4 6	Responsibility for equipment or process Responsibility for material or product Responsibility of others for safety Responsibility of others for work Responsibility of others	5	Responsibility for tools and equipment Responsibility for material or product Responsibility for confidential data Responsibility for reports and records	4
						4 6		5		4
						4 6		5		4
Job conditions	Working conditions	12 5	Working conditions Fatigue	10	Unusual features†	3 7	Working conditions Unavoidable hazards	10	Working conditions Unavoidable hazards	6
				5				5		5
				15				15		11

\* Taken from National Industrial Conference Board, *Job Evaluation*, Report No 25, p 6, Table 2, 1940  
† In this plan job conditions is a supplementary factor added after the above factors are evaluated



### Point Plan for Hourly and Salary Jobs

An example of a point plan developed in conformance with the preceding discussion is presented in the following table. The plan was designed to permit the evaluation of both hourly (manual) and salary (clerical) jobs, and consists of 12 factors with 6 degrees for each. A weighting of points that would probably be suitable for the average industry has been assigned for purposes of illustration (see Table).

Definitions have been evolved for each factor and for each degree of each factor. As in the case of the weightings of the factors, these definitions would probably fit the basic needs of the average concern.

FACTORS, DEGREES, AND POINTS OF A POINT-EVALUATION PLAN

Factors	Degrees and points					
	First	Second	Third	Fourth	Fifth	Sixth
1. Education required.....	15	30	45	60	75	90
2. Experience required.....	25	50	75	100	125	150
3. Initiative required.....	15	30	45	60	75	90
4. Physical effort required....	6	12	18	24	30	36
5. Mental effort required.....	6	12	18	24	30	36
6. Visual attention required..	6	12	18	24	30	36
7. Responsibility for tools and equipment.....	4	8	12	16	20	24
8. Responsibility for materials or product.....	4	8	12	16	20	24
9. Responsibility for confidential data.....	4	8	12	16	20	24
10. Responsibility for reports and records.....	4	8	12	16	20	24
11. Working conditions....	6	12	18	24	30	36
12. Unavoidable hazards...	5	10	15	20	25	30

#### FACTOR 1. EDUCATION REQUIRED

This factor appraises the extent of educational background required by the average person working on the job, to perform the job satisfactorily.

*First Degree.*—Ability to read and write.

*Second Degree.*—Grammar-school education or equivalent.

*Third Degree.*—Two years of high school or trades school, or equivalent.

*Fourth Degree.*—Four years of high school or graduation from business school or equivalent.

*Fifth Degree.*—Two years of college training or equivalent.

*Sixth Degree.*—College or university degree or equivalent.

#### FACTOR 2. EXPERIENCE REQUIRED

This factor appraises the length of time required for the average person, with the education previously specified, to be able to perform the job satisfactorily.

*First Degree.*—Up to 2 months.

*Second Degree.*—Over 2 months—up to 6 months.

*Third Degree.*—Over 6 months—up to 2 years.

*Fourth Degree.*—Over 2 years and up to 4 years.

*Fifth Degree.*—Over 4 years and up to 6 years.

*Sixth Degree.*—Over 6 years.

#### FACTOR 3. INITIATIVE REQUIRED

This factor appraises the nature and extent of the independent decisions and/or action required of the average employee working on the job.

*First Degree.*—Elementary type of job. The employee receives detailed instructions and is expected to perform the job exactly as indicated without deviations.

*Second Degree.*—Repetitive type of job. Requires the close following of instructions and procedures. Some few very simple minor decisions may be made by the employee if the decisions follow established precedent.

*Third Degree.*—Requires the more frequent making of simple decisions by the employee, but only when definite clear-cut precedents are available.

*Fourth Degree.*—In addition to the making of frequent simple decisions the job requires occasional decisions or

action following only general procedures in the absence of clear-cut precedents.

*Fifth Degree.*—Difficult and complex type of job. Requires the making of decisions where only general procedures are available.

*Sixth Degree.*—Extremely difficult and complex type of job. Requires independent and original action to achieve the desired results.

#### FACTOR 4. PHYSICAL EFFORT REQUIRED

This factor appraises the physical effort required of the average person to perform the job satisfactorily. Consider not only the weight handled but the frequency of handling and the work position which the employee must assume, *i.e.*, standing, sitting, bending, etc.

*First Degree.*—Very light physical effort required.

*Second Degree.*—Light physical effort required. Works regularly with lightweight objects. Comfortable work position. Typical of most types of office jobs.

*Third Degree.*—Repetitive continuous physical activity required. Light- or average-weight objects handled. Typical of the lighter type shop jobs.

*Fourth Degree.*—Moderately heavy physical activity required. Average-weight objects handled. May occasionally do heavy lifting, pushing or pulling (not to exceed 20 per cent of the job cycle).

*Fifth Degree.*—Arduous physical work. Heavy lifting, pushing, or pulling required (not to exceed 50 per cent of the job cycle).

*Sixth Degree.*—Extremely arduous physical work or a very difficult work position required. Typical of jobs such as shoveling coal, stevedoring, etc.

#### FACTOR 5. MENTAL EFFORT REQUIRED

This factor appraises the degree of mental effort required of the employee to perform the job satisfactorily. Consider the degree of organization and planning required and the complexity of the job.

*First Degree.*—Routine simple job, requiring a minimum of mental effort on the part of the employee.

*Second Degree.*—Repetitive job, requiring some mental effort on the part of the employee, but no organization or planning.

*Third Degree.*—Repetitive job, requiring considerable mental effort on the part of the employee, with some organization or planning occasionally involved.

*Fourth Degree.*—Fairly diversified job, requiring considerable mental effort and organization or planning on the part of the employee.

*Fifth Degree.*—Diversified complex job, requiring a sustained mental effort on the part of the employee, with careful organization or planning in advance.

*Sixth Degree.*—Highly diversified complex work, requiring highest level of sustained mental effort and consistently superior planning or organization in advance.

#### FACTOR 6. VISUAL ATTENTION REQUIRED

This factor appraises the degree and continuity of visual attention required of the employee to perform the job satisfactorily.

*First Degree.*—Minimum visual attention required. Job is largely automatic in nature.

*Second Degree.*—Ordinary visual attention required. Work not close or fatiguing to the eyes.

*Third Degree.*—Fairly close work. Typical of such jobs as routine typing or business-machine operation, or most inspection work.

*Fourth Degree.*—Close visual attention required. Work reasonably close to eyes with fine differentiations to be made. Typical of close continuous inspection jobs.

*Fifth Degree.*—Very close work, with constant visual attention required. Applies to jobs such as tracing or drafting.

*Sixth Degree.*—Extremely close work with intense and constant visual attention required. Job requires an

aid to vision such as a magnifying glass or jeweler's eyepiece.

#### FACTOR 7. RESPONSIBILITY FOR TOOLS AND EQUIPMENT

This factor appraises the responsibility which goes with the job for preventing damage to the tools or equipment used in the performance of the job. Considering previous damage on the job, determine the approximate dollar value of the damage which would result from the average single mishap. Also, consider the possibility of salvage and repair.

*First Degree.*—Probable damage to tools or equipment will not exceed \$5 for the average mishap.

*Second Degree.*—Probable damage to tools or equipment will not exceed \$25 for the average mishap.

*Third Degree.*—Probable damage to tools or equipment will not exceed \$100 for the average mishap.

*Fourth Degree.*—Probable damage to tools or equipment will not exceed \$500 for the average mishap.

*Fifth Degree.*—Probable damage to tools and equipment will not exceed \$1,000 for the average mishap.

*Sixth Degree.*—Probable damage to tools and equipment will amount to over \$1,000 for the average mishap.

#### FACTOR 8. RESPONSIBILITY FOR MATERIALS OR PRODUCT

This factor appraises the responsibility for preventing damage to raw materials or partly finished or completed products used in the performance of the job. Considering previous damage on the job, determine the approximate dollar value of the damage which would result from the average single mishap. Also consider the possibility of salvage and repair.

*First Degree.*—Probable damage to materials or product is trivial or negligible for the average mishap.

*Second Degree.*—Probable damage to materials or product will not exceed \$10 for the average mishap.

*Third Degree.*—Probable damage to materials or product will not exceed \$50 for the average mishap.

*Fourth Degree.*—Probable damage to materials or product will not exceed \$250 for the average mishap.

*Fifth Degree.*—Probable damage to materials or product will not exceed \$1,000 for the average mishap.

*Sixth Degree.*—Probable damage to materials or product will amount to over \$1,000 for the average mishap.

#### FACTOR 9. RESPONSIBILITY FOR SAFEGUARDING CONFIDENTIAL DATA

This factor appraises the responsibility which goes with the job for safeguarding confidential information. Consider the type of information handled and the probable disruptive effect of disclosure either upon the company's internal operations or upon its relationship with competing organizations.

*First Degree.*—No legitimate access to any confidential information.

*Second Degree.*—Occasional access to semiconfidential information, disclosure of which would be unimportant.

*Third Degree.*—Occasional access to confidential information, disclosure of which would be somewhat disruptive to the company's operations.

*Fourth Degree.*—Frequent access to confidential information, disclosure of which would be disruptive to the company's operations or might result in some financial loss to the company.

*Fifth Degree.*—Occasional access to highly confidential information, disclosure of which would be very disruptive to the company's operations or would result in material financial loss.

*Sixth Degree.*—Unrestricted access to very highly confidential information, disclosure of which would result in very great loss to the company.

#### FACTOR 10. RESPONSIBILITY FOR REPORTS AND RECORDS

This factor appraises the responsibility which goes with the job for preparing or maintaining necessary reports and records. The amount of creative effort required and the

number and complexity of the reports or records should be considered.

*First Degree.*—No responsibility for reports or records.

*Second Degree.*—Responsible for maintaining only one simple record or report.

*Third Degree.*—Responsible for maintaining a few simple records or reports.

*Fourth Degree.*—Responsible for maintaining fairly complex records or for preparing several periodic reports.

*Fifth Degree.*—Responsible for maintaining complex records or for preparing complex periodic reports.

*Sixth Degree.*—Responsible for maintaining extremely complex records or for preparing complex special reports of a nonroutine nature as requested.

#### FACTOR 11. WORKING CONDITIONS

This factor appraises the physical surroundings in which the job must be performed. Consider the extent of heat, cold, wet, dampness, darkness, glaring light, dirt, fumes, noise, etc.

*First Degree.*—Excellent working conditions.

*Second Degree.*—Occasional exposure to one or more mildly unpleasant conditions. Typical of most office jobs.

*Third Degree.*—Constant exposure to one or more fairly unpleasant conditions. Typical of most shop jobs.

*Fourth Degree.*—Intermittent exposure to one or more disagreeable conditions. Typical of such outside jobs as guard or truck driver, and such inside jobs as heat-treat, etc.

*Fifth Degree.*—Continuous exposure to several disagreeable items. Typical of jobs such as wet grinder and electroplater.

*Sixth Degree.*—Continuous exposure to several intensely disagreeable items. Typical of jobs such as coal mining, etc.

#### FACTOR 12. UNAVOIDABLE HAZARDS

This factor appraises those accident or health hazards which exist, even though safety devices or procedures may

have been installed. Taking past records into account, consider the degree of exposure to health or occupational hazards, or the type and extent of the injuries which the employee on the job is most likely to receive.

*First Degree.*—No health or accident hazards exist.

*Second Degree.*—Nature of the work is such that the employee, if injured at all on the job, would most likely receive only minor cuts or bruises. No health hazards exist.

*Third Degree.*—Nature of the work is such that the employee, if injured on the job, would most likely receive such injuries as more severe cuts and bruises, minor eye injuries, or burns (not to exceed 3 days of lost time). Health hazards negligible.

*Fourth Degree.*—Nature of the work is such that the employee, if injured on the job, would most likely receive a more serious lost time injury such as loss of fingers, serious burns, or hernia. Some exposure to minor health hazards.

*Fifth Degree.*—Nature of the work is such that the employee, if injured on the job, is most likely to receive a serious injury such as loss of a leg or arm. Some exposure to more serious health hazards, including occupational disease.

*Sixth Degree.*—Nature of the work is such that the employee, if injured on the job, is most likely to be killed by the injury. Exposure to extremely serious health and occupational disease hazards which are most likely to result in complete incapacitation or death.

### Reviewing a Proposed Point Plan

The question will ultimately arise, when considering the installation of a point system of job evaluation, as to whether it is preferable to adopt "as is" a point plan utilized successfully by some other concern or whether an entirely new plan should be designed. Actually either course of action, without modification, would be foolish.

It is unnecessary to start from scratch in the development



of a point plan since many successful plans are already in operation. However, it is dangerous to transplant into any company any procedure or system used by any other concern without reviewing it carefully to assure that it will adequately fulfill existing needs. Before adopting any point plan of job evaluation in any concern, the following items should be carefully reviewed in the light of the previous discussion in this chapter:

1. The number of factors in the plan
2. The specific items indicated as factors in view of the nature of the jobs to be evaluated
3. The weightings assigned to the factors in view of the types of job to be evaluated
4. The number of degrees in the plan
5. The specificity of the definitions of the factors and degrees and the range of jobs covered by the definitions of the degrees
6. The word choice used in the definitions considered in light of industry or company usage.

### Selection and Evaluation of Key Jobs

After the plan has been designed, 15 to 25 key jobs should be selected and carefully evaluated by a committee picked for the purpose. The committee might well consist of five or six of the top-line supervisors of the concern.<sup>1</sup>

The criteria to be used in selecting the key jobs for use with a point plan are only two:

1. The jobs should be selected so as to cover the entire range of jobs to be evaluated by the plan.
2. They should be stable, well-defined jobs that are widely understood by the employees and supervisors of the concern.

Neither the existing rate paid for any job nor the acceptability of that rate (or rate range) should be considered in

<sup>1</sup> If a bargaining agent is recognized, it may be desirable to have two or three of the union's representatives sitting in as members of the committee.

the selection of or the evaluation of the key jobs for use in conjunction with a point plan.

Preceding the actual evaluation of the key jobs, job descriptions should be carefully and thoroughly prepared as discussed in Chap. VI. Prior to the actual evaluation of the key jobs the evaluation committee should review the descriptions and actually visit the jobs and observe their performance if in any case that is deemed necessary.

The jobs should next be evaluated using the point plan previously selected. In those cases where disagreement is found among members of the committee as to which degree of a given factor applies to the job in question the possible choices should be freely discussed by the group. However, in case of doubt as to which of two degrees to select for a given key job, and if the committee members cannot agree, the higher degree should always be selected. As an example, if the committee could not decide whether the third or the fourth degree of a certain factor applied, the fourth degree should be chosen.

After the key jobs have been evaluated, they should be ranked by the committee members by factors and by total points in order to check the adequacy of the evaluations previously completed. In other words, a list should be prepared for each factor indicating under the name of the factor (1) all the key jobs that were assigned the first degree of that factor, (2) all the key jobs that were assigned the second degree of the same factor, and so on. A similar list would be prepared for each of the other factors and the committee would then review the lists looking for jobs that appear to be out of line in relation to the other jobs on the list. As the result of this review, the committee will occasionally find a few jobs that should have been assigned a different degree of a given factor. In this case any changes that are agreed upon should be made.

A similar review of the key jobs should be made by the committee members after the jobs have been listed in ascending order by the total points assigned to each job.

Once all members of the committee are in agreement as to the adequacy of the evaluation of the key jobs, the job title of each key job should be written under the degree of each factor that was assigned to that job. If the job of janitor was given the first degree of the factor of education then the job title Janitor should appear under the definition of that degree of that factor. In this fashion a job-evaluation manual can be prepared for the guidance of subsequent evaluating committees. The manual so developed should also contain, as an appendix, the descriptions of the key jobs.

It will be found that the use of specific degree definitions plus an indication of key jobs assigned to those degrees will help greatly in assuring the highest possible reliability in evaluating the balance of the jobs.

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## CHAPTER V

# COMPARISON OF JOB-EVALUATION SYSTEMS

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### The Problem of Judgment

All job-evaluation systems are basically devices for the ranking of jobs with the ultimate objective of determining their relative worth to the organization. As such, all systems necessarily require judges to do the ranking and are necessarily dependent upon the adequacy of the judgments of these people. Unfortunately, unless judgment is controlled and directed it is likely to be exceedingly unreliable.<sup>1</sup> This is so because each person's past experience and training, motivation, intelligence, and other personality characteristics play a major role in determining the results of his evaluation. All judges will be found to differ in make-up and consequently must be expected to differ in their reactions to the jobs under consideration. The prime purpose of the sometimes quite elaborate techniques and methods of job evaluation is to set up mechanics whereby these sources of error may be controlled as adequately as possible.

In order to help to control these variables, the following steps are characteristically taken:

<sup>1</sup> This has been demonstrated beyond question in innumerable situations by psychologists interested in this problem. The classic example is that of the employment interview. A famous experiment by H. L. Hollingworth revealed that when 57 applicants were ranked as to suitability by 12 experienced sales managers, one applicant was placed first by one judge and last by another. Numerous discrepancies almost as great were observed, even though all the applicants were being seriously considered for sales jobs and all the interviewers were experienced. See H. L. HOLLINGWORTH, "Judging Human Character," p. 65, D. Appleton-Century Company, Inc., New York, 1922.

will arrive at the same or almost the same set of evaluations when the same jobs are judged by them.<sup>1</sup>

### Ranking and Grading Systems

The ranking, grading, factor-comparison, and point systems of job evaluation all utilize (or should utilize) the device of the job description and all also rely (or should rely) on the pooling of the judgments of properly selected and trained judges. In these respects all four systems are equally sound and worth while. In other respects, however, the systems show sometimes very appreciable differences not only in mechanics but also in effectiveness.

For purposes of comparison as to these differences in mechanics and effectiveness, it is desirable to draw a definite line of demarcation between the ranking and grading systems on the one hand and the factor-comparison and point systems on the other. There are two reasons for this:

1. Although grading is the slightly more sophisticated technique, the ranking and grading systems have fundamentally the same merits and limitations. Because of this it is simple and convenient to consider these systems as a separate category.

2. In actual practice, in most cases, both ranking and grading are much more limited as to range of application and effectiveness than either the factor-comparison or the point system. As a consequence, those interested in selecting a job-evaluation plan will normally want to make a choice between the latter two and will not be too concerned with the others. In order to provide the necessary information on the basis of which a decision can be made, it is therefore desirable that the two most reliable and effective systems be compared directly and that ranking and grading be given separate treatment.

The ranking and grading systems are characterized by

<sup>1</sup> This is characterized as "reliability" in statistics and may be measured by means of correlational techniques commonly used in statistical analysis

the same major limitations. These may be summarized as follows:

1. In order for the ranking or grading of jobs to be effective, all the judges must be thoroughly familiar with all of the jobs in the organization.<sup>1</sup> In organizations of any size, it becomes an extremely difficult task to find enough well-qualified judges to rank or grade all jobs adequately.

2. Both methods are particularly vulnerable to the previously mentioned dangers of unconscious bias in that, if known to the judges, the rates or salaries currently paid for the jobs are likely to influence the results. Since the judges necessarily must be thoroughly familiar with all of the jobs, it is almost inevitable that they will know the rates and salaries paid. As a consequence of such knowledge, the rankings or classifications into grades tend to degenerate into a mere reflection of the existing rate or salary structure, with the obvious disadvantage that existing inequities will be perpetuated and the whole purpose of the evaluation will be defeated.

3. Neither ranking nor grading provides for definite and concrete standards or criteria in terms of which the jobs should be judged. Thus, one judge may evaluate some or all the jobs primarily in the light of the responsibilities involved, another in the light of hazards, another in the light of education or experience, and the like. Even where several judges are using the same criteria, there is no assurance that the criteria have the same meaning for all. Efforts have been made to correct this condition by listing and defining several factors such as experience, responsibility, working conditions, and skill, and instructing each judge to take account of all the factors in his evaluation. Unfortunately, this does not accomplish the desired objective in practice because the factors, though stated and defined, are quite unweighted and merely tend to confuse the

<sup>1</sup> This is not true of factor-comparison or point plans where no more than a relatively small number of jobs need to be considered at any one time.

judges by adding more items for them to try to consider simultaneously.

4. Both ranking and grading suffer from the limitation that there are no recordable intervening steps between the initial condition of unranked or ungraded jobs and the final rankings or grades. As a result, no substantiating record exists to justify to a critic the placement of the jobs in relation to one another. Although, viewed abstractly, this does not appear to be a major problem, it becomes such in a most decided manner in the handling of grievances relative to the wage or salary structure. In such instances, management finds itself hard put to justify what has been done.<sup>1</sup>

5. There is no assurance in the case of either grading or ranking evaluations that the intervals between the jobs are at all comparable. Thus, two jobs that are ranked side by side or are adjacent within a given grade may actually be much closer to one another in worth than to the jobs on either side of them without this fact ever becoming apparent. In these methods there is no quantitative means whereby such a condition can be revealed. Directing his comments toward the ranking method specifically, though they are equally applicable to grading, one authority expresses this limitation as follows:<sup>2</sup>

The typical trouble with this early method was that after the cards had been placed in the proper order, most evaluators made the mistake of saying that the spacing between each job was the same. We know from experience that this is not so. In other words, they did not fan them out into the proper interval after they had located them.

6. Both techniques become increasingly more difficult and lose effectiveness rapidly as the number of jobs and

<sup>1</sup> See D. W. WEED, *Job Evaluation by Point Ratings*, *American Machinist*, vol. 83, No. 9, p. 296, May 3, 1939. See also, *Wage and Salary Administration*, *Personnel*, vol. 15, No. 4, p. 155, 1939.

<sup>2</sup> P. W. JONES (member of panel), *Designing and Administering Job Evaluation Systems*, *Conference Board Management Record*, vol. 6, No. 4, p. 87, April, 1944.

the complexity of the organization increase. This is due largely to the fact that such a set of conditions makes it much more difficult for the judges to discover a common ground for comparison. The more widely the jobs in the organization differ from one another, the more aggravated this condition becomes.

It must not be assumed that the foregoing limitations necessarily condemn the ranking and grading methods to complete discard. On the contrary, they merely establish certain definite limiting conditions that should be seriously considered in determining whether or not either of these methods should be used in specific cases. From what has been said it should be evident that the best conditions under which either ranking or grading can be used exist in the few top jobs of the organizational hierarchy or in the small firm which does not have a large number of jobs or a complex organization. In firms of this type it is easy enough to secure judges who know all the jobs very well and, as a result, the pooling of a larger number of individual judgments can be used to ensure a higher degree of reliability than would be possible in the large firm.

A prime advantage of these methods for the small organization is that they are quite inexpensive and are simple and easy to understand and apply. This makes it unnecessary for the firm to retain a specialist or staff of specialists to install and maintain the program. Another advantage is that neither method (if properly installed) involves any steps that are incompatible with the later installation of either a factor-comparison or point system, if this is desired.

### **Factor-comparison and Point Systems**

Both the factor-comparison and the point systems are fundamentally analytical in that they require that each job be broken down into elements (factors). Each element or factor is then evaluated separately, and at the completion of the process the results of the individual evaluations by factors are summed up to make the total evaluation for



the job. The two methods differ in mode of analysis primarily in that the factor-comparison method involves relating one job directly to other jobs with respect to each factor, whereas the point method relates each job to a descriptive scale characterizing stated quantities (degrees) of each factor. In both instances the analytical approach is distinctly superior in practice to the job-as-a-whole concept that is characteristic of ranking and grading.

Although it may be simply stated, the above mentioned difference in mode of analysis between the factor-comparison and the point systems is very basic and far-reaching. As a matter of fact it is right here that both the strong and the weak points of each plan congregate. These strengths and weaknesses fall under six major headings in terms of each of which the two systems may be critically compared:

1. **Simplicity.**—Admittedly both systems are more complex and more difficult to understand and to work with than either ranking or grading. However, the point system has a distinct advantage over the factor-comparison system in this respect. This advantage appears in several ways.

- a. In the case of a factor-comparison installation the committee must go through the entire process of developing the plan by devising the scales to be used (as is outlined in Chap. III). This is an involved task which can become sufficiently trying so as to lead the committee members to give up before the required series of repeated rankings is completed. This difficulty is recognized by the leading exponents of this system who state: "In a number of installations it has not been possible to get operating executives to give enough of their time to make three separate key-job evaluation analyses."<sup>1</sup> In the case of a point-plan installation, on the other hand, the task of setting up the

<sup>1</sup> EUGENE J. BENGEL, SAMUEL L. H. BURK, and EDWARD N. HAY, "Manual of Job Evaluation," p. 112, Harper & Brothers, New York, 1941.

plan to be used is much easier since it involves a series of less complex decisions such as a determination of the factors to be used, weighting of factors, number of degrees, and a consideration of nomenclature as outlined in Chap. IV. Since various effective point plans already in existence can be used as a guide and since each item involved is much simpler than any item in the case of the establishment of a factor-comparison plan, the work of the committee in the case of the point plan is much easier.

- b. After the factor-comparison key-job lists have been set up and supplementary jobs have been added to them, the difficulties experienced by evaluating committees are appreciably lessened. Even so, each change in membership of the evaluating committee leads to a period of renewed instruction, practice and adjustment. Point plans do not suffer from this problem to any appreciable degree.
- c. Committee members commonly have their greatest difficulty with the process of dividing the money among the various factors in the development of a factor-comparison installation. The absence of criteria makes it difficult to explain the process, and the average committee member suffers considerable frustration before he "catches on." This is an experience that is foreign to the users of a point plan.
- d. Another problem that adds to the complexity of the committee member's task in working with a factor-comparison plan is a typical dilemma of all forms of ranking. Although it is easy to place the jobs at the extremes of the ranking scale, it is exceedingly difficult to decide what order to use in placing jobs in the middle portion of the scale. As a consequence, the committee members have a hard time in setting up the rankings. Since no ranking

is required of the committee member in the case of a point plan, this difficulty does not exist.

**2. Complexity of Factors.**—The number of factors that can be utilized in connection with a factor-comparison plan is limited to five or six for the very pertinent reason that with a larger number it is practically impossible to apportion the money among the factors. Even with only five factors this is a difficult undertaking and much juggling of relative ranks and amounts of money has to take place. This is so because each time any change is made in any one ranking or sum of money, other rankings and sums also have to be changed. The consequence of being limited to a relatively small number of factors is that each one has to be defined very broadly. This in turn means that the committee members must cope with a wider range of variables simultaneously in trying to rank the jobs.

This type of difficulty is not characteristic of point plans because it is possible to use a larger number of factors and to make each definition more specific and more objective. The importance of specificity and objectivity in factor definitions is sometimes overlooked by those who are impressed by the theoretically sound argument that only a very small number of factors is needed in order to produce accurate evaluation. Though correct in theory, this argument fails to consider the fact that to the evaluating committee the use of a larger number of factors is a decided advantage. It makes the evaluation simpler, easier, and more satisfying and, as a consequence, it makes the entire plan much more salable.

**3. Salability.**—A corollary to the foregoing sections on the relative simplicity of the two methods and the complexity of the factors used is that it is more difficult initially to explain and sell a factor-comparison plan to employees, union representatives, supervisors, and higher management than it is to explain and sell a point plan to these same groups. The precise details of the construction and use of

the factor-comparison scales are difficult to explain and more difficult to understand without actually going through the process, which is, of course, not practicable for large groups. On the other hand, those who do go through the entire procedure may also be hard to sell because of the complexity.

**4. Flexibility of Weighting of Factors.**—In the case of the factor-comparison system, the weightings assigned to each factor are determined for the initial key jobs by apportioning the rate paid for each of the jobs among the factors used in the plan. The amount allocated to each factor, taken as a percentage of the total amount paid for the job, automatically determines the weight assigned to each factor for each job under consideration. When more jobs are evaluated, weightings are similarly determined except that the committee has more guidance because it is able to use the key-job rates as a guide—a fact that makes the process easier. In the case of the point system the situation is quite different in that fixed weightings for each factor are determined empirically prior to putting the plan officially into use. The only flexibility permitted by a point plan, once it is established, comes through the committee's selection of higher or lower degrees of the various factors. It is evident that the factor-comparison method provides a superior means of reflecting the relative importance of each factor with respect to each individual job. In the light of differing job demands, it is certainly quite reasonable to assume that different jobs will require relatively different amounts (weightings) of each factor. In this respect the factor-comparison method shows a higher degree of flexibility than the point method.

**5. Factor Ceilings.**—In the case of the factor-comparison system there are no established ceilings for any given factor. By this is meant that in no instance is there a limit set to the maximum amount of money that can be assigned to any factor. If a new job is encountered that, for one or more factors, is much higher than any previously encoun-

tered, it can readily be handled by placing it at some point above the jobs already lined up along the appropriate factor-comparison scale. The mode of operation of the point system is quite different in this respect because a definite number of points is assigned to each degree of each factor. As a consequence, it is essential that the degree descriptions be so written that they cover a very wide range of jobs. If this is not done, the plan may at some time fail to cover a new job. However, this is largely a theoretical consideration because in actual practice the range of degrees can quite readily be set up so as to cover very adequately any such contingencies.

**6. Range of Applicability.**—Because its factors are broadly and loosely defined and are unweighted, the factor-comparison system is frequently applied without change in basic structure to a wide range of jobs up to fairly high-ranking technical and administrative positions. In the case of the point system the much more objective definitions of factors as well as the existence of degree definitions and factor weightings make it necessary to restrict the range of jobs to which any specific plan should be applied.

From this it might appear that the factor-comparison system has a decided advantage over the point system because of its superior adaptability to so wide a range of jobs. As this is an important point of comparison, this apparent advantage merits further analysis. Since both the factor-comparison and the point method of job evaluation are measuring sticks, it is understandable that there should be a limit to the range of jobs that they can measure effectively, just as a 1-in. micrometer can measure only up to 1 in. Unfortunately in the case of job-evaluation plans the precise limits of their ability to measure are not so clearly defined as in the case of the micrometer. The limits of the range of jobs that should be covered by a point plan are indicated generally by the factor and degree definitions. The limits of the range of jobs that should be covered by the factor-comparison method are generally

indicated by the factor-comparison scales used. The limits in this case are just as real but not so obvious. For this reason, and not because of any substantially greater adaptability, the factor-comparison method is sometimes applied to cover a wider range of jobs than the point method.

Since the hierarchy of any industrial or commercial organization takes the shape of a pyramid, it is obvious that the top third of the range of jobs in a given concern will amount to a small percentage of the total number of jobs involved in that same concern. Because of the nature and characteristics of the jobs involved in this upper portion of the pyramid (as previously discussed), it is doubtful whether any plan will apply to these jobs with anything resembling the effectiveness attained in the case of the more routine jobs lower in the organizational pyramid. Accordingly it is felt that both the factor-comparison and the point system of job evaluation are limited to about the same extent with respect to the range of jobs that either plan can effectively evaluate.

### Summary

Neither the factor-comparison nor the point system is a perfect measuring device for wage-determination purposes. In addition to sharing certain common limitations imposed by the frailty of human judgment, each system has certain specific limitations that are inherent in the method itself. However, in neither case are the existing limitations sufficiently serious to prevent the system from succeeding in operation. The more likely source of trouble from this point of view will be found in the form of limitations on the part of the persons who use either plan, as evidenced by improper selling, installation, and maintenance.

In addition to having demonstrated that both basic systems are capable of giving satisfactory results, the successful users of each have shown a strong tendency over a period of years to resolve many of the differences between the two. Thus, good features of the one method have been

gradually adapted to the other. For example, the use of a point scale rather than the money scale that characterizes the pure factor-comparison method has helped to avoid the very obvious likelihood of conscious or unconscious bias that is characteristic of the pure method. As an example in the reverse direction, the users of point plans have gradually come to recognize the value of arranging the jobs that have been evaluated in rank order both by factors and by total points so as to gain perspective and identify any obvious errors. A leading protagonist of the factor-comparison system, recognizing this tendency, summarizes his conclusions concerning it as follows:<sup>1</sup>

It has been quite interesting to me to see, over the years, that, starting from two origins, the pure point system has necessarily picked up the factor-comparison principle and the pure factor comparison has picked up many of the features of the point system. In my judgment, the two of them are so nearly alike today that, if well executed, they will get virtually the same results.

In spite of the fact that successful results may be achieved through use of either method, the most frequent question raised by those contemplating the installation of a job-evaluation program is: Which system shall I use? No dogmatic answer can be given to this question, as is evident from what has previously been said. Certainly, if it is planned to retain a consultant to do the work, the wise course of action is to make the choice on the basis of the consultant's reputation and ability to produce results—and to use the plan recommended by him. If, however, this is not intended and if those contemplating doing the work are not experts in job evaluation, it will be found that in most cases a point plan will result in the more satisfactory installation. This is so because of the greater over-all simplicity, objectivity, and salability of that system.

<sup>1</sup> EUGENE BENEN (panel member), *Designing and Administering Job Evaluation Systems*, *Conference Board Management Record*, vol 6, No. 4, p. 88, April, 1944.

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## CHAPTER VI

### JOB DESCRIPTIONS

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Irrespective of the specific evaluation plan to be used it is essential that jobs be adequately described before any attempt is made to evaluate them. The necessity for this is obvious when it is realized that, fundamentally, job evaluation is a process of determining differences between jobs. As a consequence, unless the job being evaluated is clearly defined and specifically delimited each member of the committee doing the measuring or evaluating is apt to have in mind a different concept of the job, and it will be impossible for the committee members to reach agreement on the relative worth of the job. The function of the job description is to identify the job so as to enable the reader to obtain a clear understanding of the work performed and the attributes desirable in the person working on the job.

When properly prepared, job descriptions are of considerable value to management in a variety of ways in addition to their use in evaluating jobs. Some of the circumstances in which they may be useful are listed below:

1. Hiring new employees
2. Transferring employees
3. Preparing a promotional schedule
4. Establishing a training program
5. Preventing accidents
6. The work of the plant physician
7. Cost estimating
8. Budgetary control
9. Timekeeping and pay-roll activities
10. Organizing a psychological testing program
11. Installing a wage-incentive system



### Items to Include in Job Descriptions

Six items of information are basic and necessary for any consideration of the job and should be included in every job description:

1. **Job Title.**—It is desirable that the job title be short, definitive, and suggestive of the nature of the job. Trade and industry nomenclature, where applicable, should always be considered in phrasing meaningful job titles.

2. **Summary of the Job.**—A short paragraph succinctly summarizing the tasks performed by the employee is helpful for subsequent convenient identification of the job.

3. **Work Performed.**—Each specific task performed should be written out and an estimate made of the percentage of the time that is devoted to the performance of each task. This is the most important phase of the job description and should be carefully prepared.

4. **Tools, Equipment, Materials.**—The tools, equipment, and materials used in the performance of the job should be included in the job description. This is necessary since these items tend to indicate the nature and complexity of the job.

5. **Physical Surroundings.**—The working conditions, hazards, and other characteristics of the physical surroundings within the working area should be described to aid in subsequent interpretation of the job description.

6. **Employee Attributes.**—Employee attributes required by the job, such as education and experience, should be indicated.

The specific items to be included in the job description will be modified somewhat by the job-evaluation plan selected. Since the job descriptions are being prepared primarily to facilitate the evaluating of the jobs, the factors composing the plan should be considered in designing a job-description form. The data gathered in the form of a job description should present sufficient information to permit accurate evaluation of the job in question by means of the job-evaluation plan.

Figure 1 presents a job-description form, illustrating the above points, which has been found to work well in conjunction with the job-evaluation plan presented in Chap. IV.

### **Job Specifications**

Management literature abounds with discussions of job descriptions and job specifications as though they were entirely separate and disassociated items. The narrow interpretation is that the job description describes only the job while the job specification specifies merely the type of person required for the job. Actually, a thorough job description, as previously indicated, includes the cardinal characteristics of the job specification.

Historically, the limited concept of the job specification was designed to aid the employment interviewer in determining whether or not the applicant under consideration was qualified to fill the position. Actually the more complete job description is superior for this purpose since not only is sufficient information contained thereon to enable the interviewer to judge the applicant in view of the demands of the job, but the interviewer is also enabled to discuss the job intelligently and in detail with the applicant.

### **What Jobs Should Be Described?**

Normally the jobs to be described will be all jobs falling in the category that will be subsequently evaluated. However, in special cases, it may be desirable to describe additional jobs for the purposes of cost estimating, budgetary control, employment, recruitment, etc.

### **How Many Job Titles Should There Be?**

In starting to develop job descriptions a list of all job titles currently in use in the concern should be prepared with a notation as to the number of people working on each job and the various departments or divisions of the company in which each job will be found.

Job title: <u>Storekeeper</u>		Date: <u>12-6-44</u>
Department(s) in which job is located: <u>Assembly</u>		Sheet <u>1</u> of <u>1</u> sheets
Summary of the job: <u>Receives and stores incoming hardware, checks and records amount</u>		
<u>Issues stock as called for on requisitions and keeps record of all stock issued</u>		
Work Performed: (Indicate approximate per cent of time devoted to each part of job)		Per Cent
<u>Checks hardware received against packing slip in package</u>		<u>10</u>
<u>Stores hardware in proper bin</u>		<u>10</u>
<u>Records amount stored on bin tag</u>		<u>5</u>
<u>When stock requisition is presented weighs out proper amount of hardware and</u>		
<u>Enters amount disbursed on bin tag</u>		<u>70</u>
		<u>5</u>
Tools used in performance of job: <u>None</u>		
Equipment used in performance of job: <u>Counting scale</u>		
Materials used in performance of job: <u>None</u>		
Reports and records prepared: <u>Maintains bin-tag record of materials received and materials</u>		
<u>disbursed</u>		

Fig. 1.-Job description (front).

Education required:	Grammar school or equivalent
Experience required:	No previous experience required, should be able to perform job satisfactorily in 5 or 6 weeks
Initiative required:	Written instructions have been prepared for employee to follow
Physical effort required:	Handles small, light items or packages most of time, occasionally lifts parcels weighing as much as 100 lb; this does not exceed 10 per cent of job cycle
Mental effort required:	Attention required to make sure hardware is stored in right bin, that counts are correct and are correctly entered in proper column of proper bin tag, and that proper quantity of right material is disbursed as called for on requisition
Visual attention required:	Work not close or fatiguing to the eyes
Responsibility for tools and equipment:	Counting scale may be damaged; Repair and adjustment would not cost over \$25
Responsibility for material and product:	Will lose small amount of hardware in handling; value negligible
Responsibility for confidential data:	None
Responsibility for reports and records:	Maintains record of incoming and outgoing items on proper bin tag
Working conditions:	Good inside working conditions, hands will get dirty from handling hardware
Unavoidable hazards:	Mainly minor scratches or cuts from hardware, no health hazards
Job description prepared by:	R. G. Allen
	Approved by V.R.A.

Fig. 1.—Job description (back)

Each job title should represent a separate and distinct job. In many cases this will probably be found to be true in current practice. However, in other cases it will be discovered that the same job is called by different titles in different departments or divisions of the same concern. Sometimes the results of a survey will reveal startling discrepancies in the titling of jobs. For example, in the federal government survey of 1928 some 54 titles were found, all identifying a job which was finally designated as junior stock clerk.<sup>1</sup> In another case one company found that more than 1,000 of the 1,500 position (job) titles in its organization could be discarded.<sup>2</sup> However, it is also frequently found that one existing job title will actually cover two or even three jobs. An example is that of the job of toolmaker which in many concerns actually breaks down into two or three separate jobs. In these cases it is common practice to denote the jobs as "toolmaker A," "toolmaker B," etc., the most highly skilled of the jobs having the designation A, and so on.

The question is sometimes asked: How many job titles (*i.e.*, jobs) should be established per 100 employees? No hard-and-fast rule can be made. The number of job titles per 100 employees or the number of employees per job title will depend upon such factors as the size of the organization, the nature of the product, the processes used, the degree to which jobs have been broken down to achieve manufacturing economy, the skills of the working force, or the pressure exerted by the union pro or con.

In one situation known to the authors the union, after an insistent campaign, was successful in getting the jobs broken down on the basis of each actual minute phase of the work performed (motion-study analysis). This resulted in one job description being established for practically each person on the pay roll. Since at any given

<sup>1</sup> Z. CLARK DICKINSON, "Collective Wage Determination," p. 238, The Ronald Press Company, New York, 1941.

<sup>2</sup> JOHN RIEGER, "Salary Determination," p. 72, Report No. 2, Bureau of Industrial Relations, University of Michigan, 1940.

moment many jobs in the average modern plant are likely to be in a state of flux owing to changes brought about by methods engineering, design engineering, tool designing, and rerouting and rescheduling of work as quantities on order change, the result of this exceedingly fine breakdown of jobs brought industrial-relations chaos. Grievances soon piled up to the point of absurdity, accompanied by requests for reevaluations on account of easily proved changes in job content.

The more typical union reaction is to fear too fine a breakdown of jobs as leading to a weakening of the seniority of union members. In a booklet prepared for its shop stewards the United Electrical, Radio, and Machine Workers of America, CIO states, "Also not to be overlooked is the tendency of job-evaluation systems to create hundreds of job classifications where only a few dozen previously existed. With more classifications in the plant than formerly it means fewer employees in each classification and consequently weakening of seniority protection."<sup>1</sup>

Obviously, the range will be from one employee per job on up. The authors know of one company that had 1,800 persons working on one evaluated job. Mr. D. W. Weed of the General Electric Company has indicated that in one plant 20,000 people worked on 400 jobs<sup>2</sup> or an average of 50 persons per job. In another case a ratio of 4 wage earners per job and 2 salary-paid employees per job has been reported.<sup>3</sup>

The decision as to whether an existing job title should cover one or more jobs should be made after an analysis of the job content is completed. Jobs covering an extremely wide *range* of skills usually should be broken down. This decision will, however, be affected by the number of people working on the job. In some instances the job will be of

<sup>1</sup> "U. E. Guide to Wage Payment Plan, Time Study, and Job Evaluation," p. 77, United Electrical, Radio, and Machine Workers of America, 1943.

<sup>2</sup> "Principles and Application of Job Evaluation," p. 22, Studies in Personnel Policy No. 62, National Industrial Conference Board, Inc., 1944.

<sup>3</sup> BERGE, BURK, and HAY, *op. cit.*, p. 118.

a special technical nature with only one person concerned. Some of the tasks may require a very high degree of skill and some may be amazingly simple. However, since only one person is working on the job, it becomes a distinct and separate job and cannot be broken down further. On the other hand, if a number of people were working on the job, it might be found upon analysis, even though they all were working under the same job title, that some few were performing mainly the difficult and highly skilled portions of the job and the rest were performing a much more routine set of tasks. Obviously, in this case the one job title should be broken down into two distinct jobs and so described.

### **How Are Job Descriptions Prepared?**

The information necessary for the preparation of the job description can be secured in one or more of the following ways:

1. By observation of the job as performed
2. By discussion with the supervisor of the job
3. By requesting the supervisor of the job to fill in a questionnaire describing the job
4. By discussion with one or more of the employees working on the job
5. By requesting one or more of the employees working on the job to fill in questionnaires describing the job

The most practical means of securing the information is through personal observation of the work performed, coupled with discussion with the supervisor of the job.

The technique of questionnaires is unwieldy and time consuming and generally does not yield satisfactory results. Most shop employees cannot be depended upon to complete a questionnaire adequately and all too frequently supervisors will either attempt to magnify the job in order to increase their own importance or will fail to include pertinent information in the reply. When questionnaires are used, invariably the job analyst must discuss the

reply with the supervisor in order to clarify the information presented. The use of questionnaires is recommended only in the case of those rare technical jobs (usually salaried) where the job content is not completely known to the supervisor, or the operation is too complex to observe or the job is actually what the employee makes it.

The use of questionnaires has occasionally been recommended on the grounds that if the employee participates in the preparation of the job description he will have more faith in the results of the entire program. Although this is undoubtedly true, it is nullified to some extent by such factors as labor turnover, transfers of employees from job to job, union representation, and the general educational level of the employees. Employee cooperation can more easily be achieved by explaining the entire program completely and in detail to the union stewards or other representatives of the employees as a first step.

Job descriptions may well be prepared out in the shop. Every job should be described as it exists and as it is currently performed. Changes in procedure that might be made or are planned should never be included in a job description until they take place. In some cases instances will be found where the way in which the job is performed does not correspond to the way in which supervision wants the job to be done. In instances of this kind the preparation of the job description should be held up until the operator is trained in the method which is finally decided upon.

One of the most difficult phases of preparing job descriptions lies in the breaking down of one existing job into two or more jobs. It is very important that the limits and starting points be expressed as concretely and objectively as possible. Vague descriptions of duties performed will lead to innumerable grievances when the job-evaluation plan is subsequently placed into effect. As an example, in order to obtain a higher rate of pay, a toolmaker *C* may claim that he is actually performing the work of a toolmaker *B*.



Grievances of this sort will arise in any event, and the ease with which they are handled will be in direct proportion to the clarity and completeness with which the job descriptions have been prepared.

Next to this problem the most common difficulty encountered in the preparation of job descriptions is the omission of pertinent information. Because of ignorance, laziness, or a mistaken desire to economize in terms of time, job descriptions may be incompletely prepared. Actually, this is worse than not preparing them at all since the resulting evaluation more than likely will be wrong as the result of the omission. Furthermore, as grievances arise subsequently concerning the correctness of any given evaluation, a serious problem will arise if management cannot prove that the job was evaluated on the basis of its actual content. On the other hand, occasionally job descriptions are found which contain entirely too much minute detail. The best job descriptions are clear, concise, and complete and present all of the job's distinguishing characteristics. Too little detail will not serve properly to differentiate one job from another and will not provide sufficient data to make equitable evaluation possible. A reasonable balance must be maintained, however, because too much detail will lead to endless subsequent controversies as minute changes are made in the job in the future.

### **Mode of Presentation of Material**

In addition to using a standard form on which to enter the job descriptions, it is desirable that a standard mode of expression be adopted to assure clarity and uniformity, both of which will contribute substantially to the reader's comprehension of the material.

It has been found that the clarity of the presentation is improved if the following three principles are generally adhered to:

1. Each sentence should begin with a functional verb.
2. The present tense should be used throughout.

3. A terse direct style should be employed, omitting all unnecessary words.

### **Checking the Job Description and Securing Approvals**

After the job descriptions have been completed, they should be carefully reviewed to assure (1) that there has been no inadvertent duplication and (2) that *all* jobs that should be evaluated have been described. This can best be done by accounting for the job or jobs performed by each individual on the pay roll with the supervisors concerned.

At this time each foreman or supervisor having authority over any of the jobs described should be requested to go over the job description of that job and either approve the description or indicate in what respect it is inadequate. This is an important selling phase in the development and installation of the job-evaluation plan.

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## CHAPTER VII

# INSTALLING AND MAINTAINING THE JOB-EVALUATION PLAN

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To succeed, job evaluation cannot operate in secret behind closed doors. The plan adopted must be given widespread sensible publicity. Top management, supervision, and employees' representatives must thoroughly understand the plan and must be convinced that it is sound and that it will be fairly administered.

### Union Participation in Job Evaluation

As soon as top management reaches the decision to install a job-evaluation plan, it must also decide, if the plant is unionized, to what extent the union shall participate in the program.

As a general rule, union participation in job evaluation has the advantage that greater understanding and acceptance of the plan will be achieved thereby. After experiencing the administration of job-evaluation plans with and without the participation of employees and their representatives, the authors feel that if the plan used is sound and is fairly administered both labor and management will be satisfied with and will benefit from joint participation.

However, there are some circumstances in which joint participation in job evaluation is either impossible or undesirable. At least one union is flatly on record as follows: "The local union should refuse to become a party to or be bound by any point rating systems which management may use to establish job evaluations."<sup>1</sup>

<sup>1</sup> "U. E. Guide to Wage Payment Plans, Time Study, and Job Evaluation," p. 77, United Electrical, Radio, and Machine Workers of America, 1943.

Other unions are in favor of joint participation in job evaluation and try to negotiate acceptance of this principle into the agreement entered into with management. An example of union-management participation in the installation of a job-evaluation program is indicated in the following material taken from a union manual:<sup>1</sup>

The union and the company have jointly completed a program of job evaluation of shop occupations. The purpose of job evaluation is to make an analytical study of the contents and functions of all jobs in order to develop a description of their characteristics, to appraise these characteristics according to their relative importance and value, and to establish a sound basis for setting equitable rates and rate ranges. To this end a joint committee of union representatives and management representatives collaborated to conduct a job-evaluation study of all occupations . . . .

Another company with 4,000 employees developed its whole job-classification plan jointly with employee representatives.<sup>2</sup>

Some managements feel strongly that their industrial relations are benefited by joint participation and some managements feel equally, if not more strongly, that job evaluation is a management prerogative and that the acceptance of joint participation would be an abrogation of management's rights, opening the door to more dangerous (from their point of view) types of collaboration. Obviously joint participation of a management and a union in job evaluation is impossible if either refuses. However, the trend in recent years has been increasingly in the direction of joint union-management participation. A recent survey indicated that out of 36 companies having job-

<sup>1</sup> Excerpt from *Union Chairman's Manual*, Aeronautical Lodge 727, International Association of Machinists (AFL), as reported by Robert D. Gray, in "Systematic Wage Administration in the Southern California Aircraft Industry," p. 75, Industrial Relations Counselors, Inc., 1943.

<sup>2</sup> "The Determination and Administration of Industrial Relations Policies," p. 47, Industrial Relations Section, Princeton University, 1939.

evaluation plans, 17, or 47 per cent, of the companies evaluated jobs in participation with the unions.<sup>1</sup>

### Selling the Program

In the final analysis, job evaluation, like a wage-incentive plan, must sell itself on the basis of accomplishment. However, the dangerous period, from the point of view of the acceptance of the results, lies between the time when the plan is designed and the time when the results of the installation are made public. At this time it is inevitable that the occupants of some jobs will feel that their jobs are worth more than the results indicate unless they or their representatives have been over the plan and the evaluations beforehand and are already convinced that the results are fair and equitable.

It should be recognized that there are basically two stages of selling required and four specific groups (in most concerns) to be sold. The first stage of selling consists of convincing top management, the upper levels of supervision, and the top officials of the union as to the equity of the plan to be used. If they are convinced, each group in turn will convince the foremen and assistant foremen or the shop stewards and key employees, as the case may be, that the plan is fair. One means of achieving this objective is to have a group of the top officials of the company and of the union meet to determine (1) what type of job-evaluation plan should be used and (2) assuming that a point plan is to be developed, what factors are to be used, the number of degrees to be used, the weightings of the factors, and the definitions of the degrees and factors. In some concerns management may prefer to make these decisions and then call in the union officials and higher levels of supervision and go over the plan with them prior to its actual installation.

<sup>1</sup> R. C. SMYTH and M. J. MURPHY, *How Industry Is Using Time Study and Incentives*, *Factory Management and Maintenance*, vol. 103, No. 1, January, 1945.

The second stage of the selling process consists of convincing the shop stewards and employees and first-line supervisors that the results of the evaluation of any specific job are fair. Although this group will be interested in the plan used, they will naturally be immeasurably more interested in the results as applied to specific jobs.

A committee is generally used to evaluate the different jobs in order that the judgments of a group of people, all of whom are familiar with the job, may be pooled. As a selling device and to get people on the committee who know the most about the job, it is not too unusual to have the committee consist of supervisors and employees (shop stewards) functioning under the guidance of a job analyst (the person assigned by management to the function of installing the program) who usually acts as chairman of the committee. This device has been successfully used and is particularly effective in situations where labor and management are accustomed to working harmoniously together.

Other companies evaluate the jobs through a committee consisting solely of management representatives and subsequently either review the results of the evaluation with any dissatisfied employee or permit dissatisfaction of this type to be handled through the grievance procedure.

In any specific case the policy of the plant or parent organization, the policy of the union concerned, the details of the agreement between the company and the union, the history of collective bargaining between the two, and the personalities on both sides will influence the exact methods that can best be used to convince all concerned as to the equity and validity of the evaluations of the specific jobs.

### **Dissemination of Job-evaluation Information**

There is no reason to keep secret any of the facts concerning job evaluation. Indeed, the converse is true. Such systems can be fully successful only if they are understood, and they can be understood only if all the facts concerning them are known.

In order to help dispel the natural suspicions and fears of their employees toward any new management device, such as job evaluation, which so intimately concerns their fiscal status, many companies have explained the entire job-evaluation plan on their bulletin boards or in their house organs. One company even had the complete story of the whole program published in a regular edition of the local newspaper.<sup>1</sup>

In addition to publicity of this sort, many companies have adopted the policy of publicly posting the job title, the summary of the job, and the rate (or rate range) of the job in each department of the company in which the job exists. If this is done, each sheet so posted should also contain a statement outlining the conditions under which jobs will be reevaluated and the procedure which an employee should follow in order to put the wheels of reevaluation in motion, if desired. Such a display of management's integrity and fair-mindedness will help immeasurably to sell supervisors, individual employees, and their representatives on the equity of the plan.

### Procedure for Evaluating Jobs

The procedure for evaluating jobs is substantially the same in the case of both the factor-comparison and the point method. In both instances the plan and the program must first be designed and sold and then job descriptions prepared for all jobs to be evaluated. As a next step, if a factor-comparison plan is to be used, the job analyst should, for his own guidance, tentatively determine where on the previously established scale for each factor the jobs to be evaluated should fall. When this has been completed for all the jobs, he should then carefully review the lists for inconsistencies. The job analyst is then ready to meet with the committee for the formal evaluation of each job.

If a point plan is to be used, the job analyst should, without prior consultation with anyone, tentatively select

<sup>1</sup> *Personnel*, vol. 2, p. 43, November, 1934.

which degree of the first factor of the plan is required by each job to be evaluated. The jobs should then be listed in rank order for this one factor by degrees. In order to discover inconsistencies, this list should be carefully reviewed by the job analyst considering the degrees assigned to the key jobs previously evaluated at the time the plan was designed and also considering the relative rank order of all jobs on this one factor. After what appears to be the proper degree of the first factor has been selected for each job to be evaluated and a ranking of jobs by degrees has been prepared for that factor, the process should be repeated for each of the other factors in the plan.

This ranking comparison of jobs by factors is not final and official and is done only to guide the judgment of the job analyst in his subsequent role as committee chairman. The experience of actually visiting and observing the jobs to be evaluated, preparing job descriptions, and evaluating the jobs on a trial basis is invaluable to the job analyst in developing over-all perspective and objectivity.

The next step is to meet with the formal job-evaluation committee and evaluate the jobs officially. A typical committee might well consist of

1. The head of the department in which the job is located
2. The foreman or supervisor having authority over the job
3. The union president (or chief steward, or chairman of the union's grievance committee)
4. The union steward for the job
5. The job analyst

Naturally, in firms in which the evaluations are not conducted on a joint basis, the places of the above-mentioned union representatives would be filled by representatives of management.

The job analyst should act as chairman of the committee and lead and guide the discussion. Each member of the committee should be given a copy of the previously pre-



pared job description (see Fig. 1), a copy of the job-evaluation manual (if one has been prepared), and a copy of the job-evaluation committee record (see Fig. 2). The job title and the summary of the job should be entered on the committee record form before copies of it are distributed to the committee members.

The first act of the committee in evaluating any job is to review carefully the description of the job being evaluated. If any member of the committee disagrees with any part of the job description, either he should be convinced that he is wrong or the job description should be amended at that time. Once the committee is in agreement on the job description, the job analyst should read the definition of the first factor and the definitions of the degrees of that factor to the committee. After deliberation the committee should select the appropriate degree for the job being evaluated for the first factor. . Again, if one or more members of the committee cannot agree on which degree of the factor applies to the job being evaluated, the problem should be discussed by the committee members until they finally agree. During this phase the job analyst should carefully guide the discussion and will naturally refer to the degree assigned to other comparably evaluated jobs for that factor. This process should be repeated until the proper degree of each factor has been selected for the job being evaluated.

During the process of the evaluation of any job the committee should be guided by the following:

1. The job description
2. The definitions of the factors
3. The definitions of the degrees
4. The degree of each factor assigned to the key jobs and to other evaluated jobs
5. The comments of the job analyst

After the committee has evaluated the job, the evaluation should be approved by the proper persons in the managerial hierarchy, and the information should be dis-

Job Title <u>Storekeeper</u>		
Summary of the Job		
Receives and stores incoming hardware.		
Checks and records amount. Issues stock		
as called for on requisitions and keeps		
record of all stock issued.		
Factors	Degree of each factor	Point value
1. Education required. . . . .	2	30
2. Experience required . . . . .	2	50
3. Initiative required. . . . .	2	30
4. Physical effort required. . . . .	4	24
5. Mental effort required. . . . .	3	18
6. Visual attention required. . . . .	2	12
7. Responsibility for tools and equipment . . . . .	2	8
8. Responsibility for material or product. . . . .	1	4
9. Responsibility for confidential data. . . . .	1	4
10. Responsibility for reports and records. . . . .	2	8
11. Working conditions. . . . .	3	18
12. Unavoidable hazards. . . . .	2	10
Signatures of Committee:		
<u>A. B. Jones</u>	Total Points <u>216</u>	
<u>D. L. Raylor</u>	Labor Grade <u>3</u>	
<u>P. D. Hughes</u>	Approved by:	
<u>M. N. Owens</u>	<u>R. E. Royston</u>	
<u>A. L. Norris</u>	Chief Job Analyst	
Date Signed <u>1-15-45</u>	Date Approved <u>1-17-45</u>	

FIG. 2.—Job-evaluation committee record.

tributed and posted in keeping with the policy of the concern.

### Reevaluations of Jobs

Periodically it will be necessary to review existing evaluations. Such reviews, or reevaluations, may be the result of any one of the following:

1. The job has changed and new features have been added.

2. The job has changed, and some feature formerly present has been removed.

3. The reevaluation is requested by management because of supervisory or executive dissatisfaction.

4. The reevaluation is requested by an employee or the union because of their dissatisfaction.

Every job should be reevaluated whenever the method of doing the job, or the tools, equipment, materials, or working conditions differ significantly from that indicated in the job description. Whether or not the changes make the job simpler or more difficult, the job should be reevaluated by the appropriate committee and the rate (or rate range) of the job changed if the total points change sufficiently to place the job in a lower or higher labor grade.

For psychological reasons it is important that the reevaluation take place as soon as possible after the changes in job content take place. If the reevaluation is delayed, in the case of a job that has become easier, considerable opposition to any change in the rate will be encountered from employees, shop stewards, and, quite often, even from supervision. In fairness to the employees, management should be equally prompt in reevaluating jobs that have become more difficult, although in this situation the same degree of opposition will not be encountered, particularly from the employees or their union representatives.

It should be a definite responsibility of supervision to notify the job analyst whenever changes occur in the job description. However, in practice it will be found that

this is insufficient. Because of pressure of other responsibilities or for other reasons many supervisors fail to inform the job analyst when such changes occur. Therefore, the job analyst should spend all of his time, when not otherwise engaged, in making rechecks of job descriptions. This should be done on a planned and systematic basis so that *at least* twice each year the description of every evaluated job is checked.

Both management and the employees, either as individuals or through their representatives, should have the right to request and receive a reevaluation of any job whenever the belief exists that the original evaluation was unfair. All requests for reevaluations should be handled as promptly as possible (ahead of new evaluations) as evidence of management's good faith.

Most requests for reevaluations will be received from employees or their representatives. Companies with a range of rates for each job will find that, irrespective of the method of progression within the range (*i.e.*, either as the result of merit, automatic increases, or some plan combining the two), shortly after a number of employees on the job reach the maximum rate of the range a request will be received to reevaluate the job. If the job is correctly evaluated as is, all members of the evaluation committee should refuse to succumb to the pressure which will be exerted to raise the evaluation. It is very difficult for shop stewards or other union officials to resist pressure of this type from their constituents and this is one reason why some managements hesitate to engage in a joint job-evaluation program with the representatives of their employees. Succumbing to such pressures will ultimately ruin any job-evaluation installation no matter how carefully it was set up. As more and more jobs are evaluated out of line, more and more conflicting reference points are established, thus making it more difficult to keep the balance of the jobs in line. It is far better, at the first sign of the application of this type of pressure, for management to fight the case per-

sistently on the basis of the facts as they exist, carrying the case, if necessary, as far as the grievance procedure of the agreement permits.

### Length of Time Required to Install a Job-evaluation Program

The time required to install a job-evaluation program can be roughly approximated from the experience of other companies. Mr. P. W. Jones of Sperry Gyroscope has indicated that the job-evaluation installation of his company, covering 23,000 employees and 426 jobs, took 4½ months.<sup>1</sup> Mr. Briggs of Eastman Kodak stated that it took 2 to 3 months to install their job-evaluation plan covering 18,000 to 20,000 employees.<sup>2</sup> The authors feel from their own experience that an average of three or four jobs per day can be described and evaluated (as herein described) by a competent job analyst. This is borne out by the experience of others.<sup>3</sup>

<sup>1</sup> "Principles and Application of Job Evaluation," p. 6, Studies in Personnel Policy No. 62, National Industrial Conference Board, Inc., April, 1944

<sup>2</sup> *Ibid.*

<sup>3</sup> "Principles and Application of Job Evaluation," *op. cit.*, p. 22.

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## CHAPTER VIII

# EMPLOYEE CLASSIFICATION

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### Background

Employee classification is nothing more than the process of assigning to each employee the title of the job which he performs. This title should be held by him as long as he remains on the job and should be changed if he is transferred, promoted, or demoted to another job.

Although some phases of a program for the determination and administration of wages and salaries are highly judgmental, as in the case of job evaluation, and other phases are frequently matters of collective bargaining, as in the case of the monetary scale to be used, the determination of the classification of each employee should be made on as highly objective and factual a basis as possible.

Two insidious problems are common to all job-evaluation installations. One, the tendency either to fail to reevaluate jobs as necessary or to reevaluate jobs too high as the result of pressure from specific groups, has been discussed previously. The other, and the more dangerous, since it is not so apparent, is the tendency of some supervisors to permit improper classification of some employees either as the result of carelessness or as the result of giving in to insistent pressure on the part of employees or union representatives. One example of this sort has been cited by Dr. George W. Taylor, formerly National War Labor Board chairman, as follows:

One company which recently brought a case before the Board pays its common laborers 70 cents an hour. Utility men receive 80 cents an hour. There have been no recent changes in these wage rates; but the company formerly had 15 common laborers for every utility man. Today, making the same product in the

same way, that firm has 15 utility men for every common laborer. It has increased wages 10 cents an hour without any change in its wage scale whatsoever.<sup>1</sup>

### Results of Improper Classification

In many instances the result of improper employee classification will be that the misclassified employee will be under- or overpaid. This, in turn, leads to erroneous costing of the product as well as to innumerable grievances. If the employee carries the classification of a lower paid job than the job on which he is actually working, he will eventually discover it and will undoubtedly feel that he has been unjustly treated, which is, of course, true. If, on the other hand, the employee carries the classification of a higher paid job than the job on which he is working, he himself will be constantly uneasy, knowing that he is overpaid. In addition, the other employees working on the same job or in the same area almost inevitably will become aware of the inequity and will feel that they, too, should be assigned the higher classification. In view of such highly probable complications, the only policy that is fair to both the company and the employee is to insist rigorously on the practice of classifying employees exclusively on the basis of the jobs actually performed by them and to change each employee's classification whenever he is assigned to a different job.

### Checking Classifications

The determination and assignment of classifications are necessarily the responsibility of each supervisor. No one else is in so advantageous a position to say precisely what the employee's classification should be. For anyone else to be able to perform this function as effectively, it would be necessary to visit the job and actually to observe the employee for a sufficient period of time to permit a sound determination to be made. However, it has long been

<sup>1</sup> *Management News*, vol. 18, No. 4, p. 2, Apr. 30, 1945.

recognized that the execution of all important functions of a business should be checked. Since employee classification is an important element of costs and industrial relations, it follows that the classifications of all employees should be reviewed periodically. There are two principal ways in which this may be done:

1. One method of checking classifications that has proved successful in practice is periodically<sup>1</sup> to give each foreman or supervisor a list of the names (and probably pay-roll numbers) of the people under his supervision and to have him indicate what each employee's current classification should be. Such sheets should be signed and returned, upon their completion, and should then be compared with the existing records. Any discrepancies of classifications thus discovered may then be cleared up, using the system of paper work in effect within the particular organization in order to assure a permanent record of the transaction.

2. In addition to the periodic review of classifications conducted by supervisors, it has also been found helpful to have spot checks made of employee classifications by someone other than the employee's immediate supervisor. To be most effective such checks should include a reasonable percentage of the employees (such as 20 per cent) at rather infrequent intervals or a smaller number of cases should be selected at random every few weeks. In some situations where there is reason to believe that the classifications assigned to employees in a given department or area are faulty, it may be wise to have all classifications in that area reviewed by a third party to ensure that any erroneous ones will be corrected.

Care should be taken to assure that foremen and supervisors are sold on this technique and understand that such checks are in the nature of an audit comparable to the audit made of the concern's books, and are not in any sense

<sup>1</sup> Every 4 or 6 months is not unreasonably demanding in the average situation. Obviously, the prime determiner of the proper definition of "periodically" for every firm is the stability of its production schedule. In periods of rapid change it may be necessary to make very frequent checks.



a reflection on the integrity or ability of the supervisors. On the contrary, it should be emphasized that the spot checks are a device for their protection.

Personalities and the size and organization structure of the concern will influence the choice of the person or persons to be selected to make spot checks of classifications. The person or persons selected for this assignment should be familiar with the jobs and their descriptions as well as the materials, processes, and equipment used in the concern. Frequently, members of higher supervision or individuals performing staff activities such as the job analyst or time study men, are used for part of their time in fulfilling this function.

A spot check of an employee's classification cannot be made from a review of records or from an office desk. The individual employee concerned must be visited on his job, preferably in the presence of his supervisor. Then the classification can be determined after observation of the actual work performed and discussion with the supervisor and even the employee, if necessary.

### How to Classify Employees

In most cases it is quite easy to determine what the employee's classification should be. This is particularly true because most employees spend their full time on only one job. However, in some instances an employee will more or less regularly work on two or more jobs, in which case the problem of proper classification is more complex.<sup>1</sup> At the time of the installation of the program it is necessary for the concern to establish a policy regarding situations of this kind. Several possible choices are available, and the answer to this particular problem is quite likely to be

<sup>1</sup> There is, of course, no problem if the employee works *regularly* on the same two or more jobs. In this case, the several jobs are written into a single job description and constitute a single job. Thus, "set up and operate" would be a distinct job as compared with either "set up" or "operate" taken separately.

a matter for collective bargaining in a unionized shop. Some of the possibilities are as follows:

1. The employee's classification could be changed whenever his job changes. This is undoubtedly the fairest method, but normally it involves a considerable burden of paper work in order to keep up with the changes.<sup>1</sup>

2. The employee could be classified as to the highest evaluated job on which he works regularly regardless of the relative amount of time devoted to this job. This is the arrangement that is most popular with both employees and unions. The problem, of course, is that this can at times be unduly expensive from the point of view of manufacturing costs.

3. The employee could be classified as to the job on which he works regularly for the greatest percentage of the time. This is often difficult of practical application because both employees and unions feel that an employee should not have to work on a higher rated job at a rate lower than the job carries and because it is difficult, in most shops, to determine the percentages. This latter point is particularly pertinent since the relative amounts of time devoted to each job may vary from day to day and from week to week.

Actually the great majority of employees work regularly on only one job, and it appears reasonable that the few employees who work regularly on two or more distinct jobs should carry the classification of the higher evaluated job since they actually work successfully on it at least part of the time.

One other problem associated with employee classification is that of the temporary transfer. To meet fluctuating production needs, it is necessary, in most organizations, occasionally to transfer employees temporarily to other jobs. To avoid successive reclassifications and their

<sup>1</sup> Some concerns obviate this difficulty by assigning a single rate to each job and then do not classify employees at all, but pay them the rate of the job on which they happen to be currently working. However, very close job-by-job timekeeping control must be established for this plan to be successful. This device is discussed further in Chap. XI.

attendant paper work and to prevent disturbing fluctuations in the employee's pay, some companies have adopted a "grace period" of a given number of days or weeks during which the employee retains his old classification and rate. The justification for this is the expectation that the employee will be back on his old job before the end of the time specified. A corollary to this policy, of course, is that if the employee remains on the new job for a period longer than the allotted time he should be permanently transferred and reclassified accordingly.

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## CHAPTER IX

# LABOR-MARKET WAGE SURVEY

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After the employees have been classified, the next logical step is to express the results of the evaluation in terms of a monetary scale. At this point it is often a great temptation to take the firm's current wage scale as is, and to assign the lowest rate (or rate range) to the lowest evaluated job or jobs and the highest rate (or rate range) to the highest evaluated job or jobs, with the remaining jobs placed within the intervening space in accordance with their relative worth. The temptation to establish rates for the jobs in this manner is decidedly dangerous because it necessarily means that little or no attention will be given to the adequacy of the existing general wage scale.

Most companies are in competition with others in the same industry for profits and in the same geographic area for labor. Since the amount of money spent by any concern for labor has a bearing on the profits earned by it, it is evident that both industry and area rates must be given due consideration. A labor-market wage survey is the only really satisfactory method of securing the facts that are necessary for assessing the adequacy of an existing or contemplated wage scale. By means of such a survey, data can be accumulated which will make it possible for the firm conducting the survey to compare itself to other concerns in the community (*i.e.*, geographic area) and in the industry with respect to a variety of items but particularly with respect to the base and earned rates or salaries of employees.

It must be remembered that any such comparisons will be accurate and useful only to the extent that the original data are accurate and have been properly secured. In view

of this fact, it is important to avoid the adoption of superficial short cuts such as telephone surveys or brief letters that merely list one or more job titles followed by blank spaces for the insertion of average rates or salaries. Unfortunately, it happens all too often that a company executive will be satisfied merely to call up or write a number of friends or acquaintances in neighboring plants, asking them what they pay their toolmakers, machinists, clerks, etc. The results of such a procedure can hardly help being inconclusive and unsatisfactory since there is no assurance that like jobs are being compared.<sup>1</sup> Thus, the toolmaker in one firm may work only on simple repair jobs while in another firm the construction of compound dies might be involved. The clerk in one plant might be devoting her time primarily to filing while in another concern employees with the same job title might be preparing complicated reports.

Because of the number and complexity of the variables involved, a labor-market survey must be conducted under carefully controlled conditions for the results to be at all meaningful. This means that much time, effort, and careful planning must go into the survey if it is to be of benefit. Certainly a poor survey is worse than none because the conclusions reached on the basis of a carelessly accumulated set of data can be both misleading and costly.<sup>2</sup> It is the purpose of the remainder of this chapter to attempt to define in practical terms what constitutes a satisfactory labor-market survey.

<sup>1</sup> As a matter of fact, in such cases there is not even necessarily the assurance that the rates quoted will reflect anything like the true earning potentialities of the employees.

<sup>2</sup> There are also pitfalls that must be avoided in using the results of surveys conducted by the Department of Labor, various trade and industry associations, and various state agencies. Although such surveys are almost always very well organized and summarized, they are limited in their usefulness to any specific company by the necessary generality of the results. A major contribution of these surveys is that they may reveal evidences of broad national, local, or regional trends, the significance of which can then be checked by any individual concern by means of its own survey, adapted to its own needs and circumstances.

### Jobs to Be Included in the Survey

Results that will reflect both the company's and the community's wage structure and will permit significant intercomparisons to be made can be achieved only if careful attention is given to the selection of the jobs that are to be included in the survey. To avoid the possibility that inadequate job selection will negate the results of the survey, the following five criteria should be used as guides in the selection process:<sup>1</sup>

1. The jobs should be distributed over the whole range of evaluated jobs. In other words, a representative sampling of the range of jobs should be chosen, including all levels. This can, of course, be checked by referring to the total points assigned, in the case of a point plan, or to the rank order of the jobs in the case of other types of plan.

2. The jobs should have remained substantially unchanged in recent years. This criterion is important primarily because of its indication of stability. Where previously the rates have not been set by means of a job-evaluation plan, the older and more stable jobs will be found to have been the bench marks for the empirical setting of rates on newer jobs. As a result, it is these older jobs that are really the backbone of the wage structure and from them the most reliable picture of the firm's basic wage structure can be constructed.

3. The jobs should exist in a number of near-by or competing companies. It is evident that this is a most pertinent requirement, since, as has already been mentioned, both industry and area rates have to be considered in reviewing a wage scale. Naturally, these can be considered only if care is taken to include jobs that are known to exist in the firms that are to be asked to participate in the survey.

4. The jobs should be filled by as large a number of workers as possible. There are two reasons for this cri-

<sup>1</sup> See JOHN W. RIEGEL, "Salary Determination," Bureau of Industrial Relations, University of Michigan, *Report 2*, p. 20, 1940.

terion: (1) The statistical reliability of any figures as to average earned rates, average base rates, etc., will be greatly increased by the presence of a reasonable number of persons on the job. (2) Such jobs are more representative of the actual impact of the wage scale on the financial well-being of the company, since the jobs that have large numbers of employees working on them are the ones that contribute most heavily to cost of manufacture.

5. There should not be unreasonable shortage or surplus of workers qualified to fill the jobs. Such a maladjustment tends to distort the wages and salaries paid and makes the jobs too unreliable to be included in a labor-market survey. With respect to this particular criterion it is likely that the concern conducting the survey will have to use a good deal of discretion. Obviously, however, it is necessary to be realistic, when shortages of skilled workers exist, and as a consequence it may be deemed advisable to survey such jobs just to determine how radically the wage scale (or a portion thereof) may have to be revised in order to compete.

### **Number of Jobs to Be Included in the Survey**

The number of jobs included in labor-market surveys ranges enormously in practice, going from 10 or 15 up to as many as 400. Obviously, a firm that includes 400 jobs in a survey is probably covering a very substantial proportion, if not all, of its jobs. Also, quite obviously it is extremely unlikely that all 400 jobs will fulfill the five criteria previously discussed. The answer is that those who use excessively large numbers of jobs in surveys pay scant attention to criteria such as have been presented above. They reason that the safest way in which to proceed is to use a "scattergun" technique, expecting that a sufficient number of replies will be given by the participating firms to some of the many jobs listed to justify statistical treatment. Undoubtedly the users of this technique feel that greater reliability will result because of the large number of jobs used.

However, it must not be forgotten that the task of struggling with excessively large numbers of jobs is very burdensome to the cooperating companies. In addition, there is good reason to believe that merely increasing the number of jobs surveyed has little bearing on the reliability of the results obtained. A surprisingly small number of carefully selected jobs can be made to produce sound and useful results. This is readily demonstrated by calculating a best fitting curve for a large number of jobs and comparing this with a curve based on a small number of carefully selected jobs. The authors' experience has been that there is a negligible difference between two such curves as to end result and an enormous difference as to the amount of time and hard work involved. As a consequence of such experience it is felt that between 20 and 30 well-chosen jobs will provide the base for a workmanlike and reliable labor-market survey.<sup>1</sup>

### Companies to Be Included in the Survey

The companies invited to participate in the survey should be carefully selected on the basis of (1) the type of industry of which the company conducting the survey is a part and (2) the extent to which the company conducting the survey is in competition with the other concerns in the area for labor.

In some specialized trades, such as glass blowing, craftsmen tend to shift jobs solely within the same industry. In this type of situation, where labor competition exists within the industry and particularly where the concern is losing skilled employees to its competitors, it is desirable to include other firms in the same industry in the labor-market survey. It is, of course, also desirable to select firms

<sup>1</sup> Modern statistics and small sampling theory give ample justification for the recommended use of a good, small sample. The splendid results obtained by the various public-opinion and consumer polls and surveys attest to this. The Gallup, *Fortune* (Roper), and other well-known techniques use extremely small samples, but determine the sample with great precision and care.



in the industry that are reasonably near by as well as the leading firms in the particular line of endeavor.

The company conducting the survey is also in competition for labor with other firms in other industries in the same geographic area. The other firms in the area to be included in the survey should meet the following conditions:

1. The firms should be within reasonable commuting or traveling distance from the area or areas in which the majority of the members of the labor market live. Normally, it is quite unusual for the average employee to be willing to spend more than an hour in traveling to or from work. Thus, the geographic area will be found to be limited in most instances by reasonably well-defined boundaries. Naturally, local conditions such as the size of the community or availability of public transportation, will make the determination of the specific labor-market area a variable problem.

2. The firms should be large enough to make it worth while from a statistical point of view to include them in the survey.

3. The firms should be well thought of in the community and generally considered to be good places in which to work.

### **Number of Companies to Be Included**

The number of companies to be included in a survey will necessarily depend upon the nature of the industry and the size and industrial consistency of the community. In many instances the company conducting the survey will exist in a small town and will be the only large employer of labor in the area, thus automatically, to a certain extent, determining the going rates of the area. In other cases the concern will have little or no industry competition to worry about because of patents or other circumstances. In either type of situation the survey (if any is judged necessary) will have to be extended further afield to adjacent competitive areas or to related or potentially competitive industries.

The same general considerations apply to the determination of the number of concerns to be surveyed as to the number of jobs to be included in the survey. For the same reasons as previously outlined it is quite safe to limit the number of firms to between 20 and 30, provided that they are carefully selected. It is rare indeed that more than 20 to 30 firms will have any substantial effect on either industry or area rates. As a matter of fact it is quite likely that the more common situation will be that in which only 6 to 12 firms will be available or helpful for survey purposes. If such small numbers adequately cover the competition, this should not be a source of concern because in such cases the few firms are not merely a *sample* of the competition—they are the *entire* competition. As a consequence, a survey under these conditions will be found to be quite accurate and reliable.

### Information to Be Secured in the Survey

The labor-market survey should secure information from the participating companies so that hiring rates and the relative over-all incomes of employees in the different concerns can be compared.

The information to be secured falls into two general classes: (1) base rates (and salaries), earned rates (and salaries), hours scheduled, and hours actually worked; (2) data concerning items contributing to supplemental income, such as bonus earnings, overtime, paid vacations, pensions, night shift premium, paid holidays, rest periods, profit sharing, sick leaves with pay, insurance, and hospitalization.

### Format of the Labor-market Survey

To ensure adequate subsequent analysis and statistical treatment of the data it is essential not only that the above-mentioned information be secured for the jobs selected, but also that it be secured in a useful form.

For example, the practice of asking the participating

firms to calculate averages (*i.e.*, average base rate, average earned rate, etc.) is one to be avoided. To argue that this is desirable on the grounds that it saves work on the part of the company conducting the survey is not only unfair to the cooperating companies (who should actually be given every consideration in this respect) but also unwise. The unwise aspect of such a practice is that it prevents the securing of the actual individual figures. It is far better to get figures on the number of persons being paid each given base or earned rate on each job in each company surveyed. In this manner a complete set of facts may be accumulated and analyzed in any way desired. There is no danger, under such circumstances, that different firms may have used different methods of calculation. In addition, opportunity is available to determine the actual range of rates, the actual going rate of each job, etc., which is impossible when the cooperating firm is merely asked for average figures.<sup>1</sup> In all instances, therefore, it is eminently desirable to ask the companies participating in the survey to give simple, factual answers and to regard the work of summarizing and analyzing the data as the responsibility of the company making the survey.

The design of the forms used in the survey is, of course, very important in determining the degree of specificity and the adequacy of the replies. It is absolutely essential that the form be simple and easy to complete. The questions should be brief and clear and the use of colloquial or technical terms should be avoided. In addition, instruction should be provided for all portions of the survey to which it is anticipated that clerical personnel will be assigned by the participating concern. These instructions should give particular attention to the definition of any terms that might be variously interpreted by those in the participating company.

<sup>1</sup> Conceivably, too, there is another danger point that might be encountered in that failure to ask for the actual raw data might occasionally lead a firm merely to estimate the required averages and send them on.

Figure 3 illustrates the full text of the general-information section of a labor-market survey which has proved to be valuable and easy to complete. This section covers in some detail a wide range of items of general information, policies, and practices that throw light upon the available opportunities for supplemental income. Figure 4, immediately following, illustrates a wage or salary information sheet, a separate one of which is included in the survey for each job. Note that this sheet asks for the actual rates of pay. The table following illustrates the instruction sheet that was inserted in front of the group of wage or salary information sheets which were included in the survey. Before being printed, this set of instructions was actually tried out on several pay-roll clerks to determine whether or not they could understand what was written. All sections that were not clear were carefully revised to increase their intelligibility.

### Securing the Information

Once the firms to participate in the survey have been selected it will be found helpful to have the general manager, president, or other high-ranking officer of the firm conducting the survey request the cooperation of the other firms by writing to one of their top executive officials. A letter that has been used for this purpose is presented in Fig. 5.

After an appointment has been made, the job analyst should visit each of the participating firms to discuss the survey and secure as much of the information at that time as possible. The general information should be secured first. This should be obtained orally from the representative of the participating company and entered on the form by the job analyst. At this time any necessary explanatory comments can be filled in. It has been found from experience that this phase of the survey will take about 2 hr. per firm if the various topics of general information are adequately discussed and appropriate notations made.

LABOR-MARKET SURVEY			
GENERAL INFORMATION: POLICIES AND PRACTICES AFFECTING ANNUAL INCOME			
Name of company participating in the survey: _____			
Address: _____		Nature of business: _____	
Code no.: _____		Date: _____	
Data furnished by: _____		Title: _____	
1. Number of employees in the company:			
	Male	Female	
A. Hourly.....	_____	_____	
B. Salary .....	_____	_____	
Total.....	_____	_____	
2. Minimum hiring rate:			
	Male	Female	
A. Hourly.....	_____	_____	
B. Salary.....	_____	_____	
	Hourly	Salary	
	Yes No	Yes No	
3. Do you use a single rate for each job? _____			
Do you use a rate range for each job? _____			
4. If you use rate ranges, indicate method of progression within the range:			
	Hourly	Salary	
A. Merit increases only.....	_____	_____	
B. Automatic increases only.....	_____	_____	
C. Part automatic and part merit.....	_____	_____	
Please explain, if C. _____			
	Hourly	Salary	
	Yes No	Yes No	
5. Do you guarantee employees an annual income?.....			
If "yes," please explain: _____			
6. Average (estimate, if records are not available) number of hours worked per year by average shop employee: _____ hours.			
	Hourly	Salary	
	Yes No	Yes No	
7. Do you use some form of wage-incentive plan (such as piece work)?.....			
8. If a wage-incentive plan is used what is the average percentage of earnings of the employees working under the plan over their base rates as the result of the plan?			
	Hourly %	Salary %	
	_____	_____	

FIG. 3.

## LABOR MARKET SURVEY (Continued)

9. Please explain the basis of the payment of overtime: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Hourly	Salary
Yes No	Yes No

10. Do you have night shifts?..... \_\_\_\_\_  
 Do you pay a night-shift differential?..... \_\_\_\_\_  
 If so, please indicate the amount or the percent and the shifts to which it applies:\_\_\_\_\_

Hourly	Salary
Yes No	Yes No

11. Is the employee's lunch time paid for? \_\_\_\_\_

If so, how long is the lunch time?.... \_\_\_\_\_

12. Is a clean-up time granted at the end of each shift? \_\_\_\_\_

Yes \_\_\_\_\_ No \_\_\_\_\_

If so, are employees paid for this time?... Yes \_\_\_\_\_ No \_\_\_\_\_

Hourly	Salary
Yes No	Yes No

13. Are rest periods granted?..... \_\_\_\_\_

If so, are they paid for?..... \_\_\_\_\_

If rest periods are granted, please indicate the amount of time allowed during each shift:

Hourly: \_\_\_\_\_ Salary: \_\_\_\_\_

14. Holidays observed (check those that are observed):

Jan.	Feb.	Feb.	May	July	Labor	Elec-	Thanks-	Dec.	Other
1	12	22	30	4	Day	tion	giving	25	
					Day	Day	Day		

Hourly: \_\_\_\_\_

Salary: \_\_\_\_\_

If employees work on holidays, what are they paid?

Hourly	Salary
--------	--------

Time and one-half..... \_\_\_\_\_

Double time..... \_\_\_\_\_

Other..... \_\_\_\_\_

Are employees paid if they do *not* work on holidays?

Hourly	Salary
Yes No	Yes No

FIG. 3 (continued).

## LABOR MARKET SURVEY (Continued)

15. Do you have a plan for the payment of employee benefits? (Excluding Social Security and Workman's Compensation)

Contributed to by:

Both:

	Company		Employee		Both:	
	Yes	No	Only	Only	%	%
Death.....	_____	_____	_____	_____	_____	_____
Accident. ....	_____	_____	_____	_____	_____	_____
Sickness.....	_____	_____	_____	_____	_____	_____
Hospitalization . . . .	_____	_____	_____	_____	_____	_____
Pension.....	_____	_____	_____	_____	_____	_____
Savings.....	_____	_____	_____	_____	_____	_____
Other.....	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

16. Bonuses paid in addition to regular earnings (excluding wage-incentive bonus earnings):

Yes No

Explain

- A. Profit-sharing..... \_\_\_\_\_
- B. Christmas bonus.... \_\_\_\_\_
- C. Other..... \_\_\_\_\_

17. A. Are sick leaves or other leaves of absence granted?

Hourly Salary  
Yes No Yes No

Sick leave..... \_\_\_\_\_

Other leaves of absence (explain).... \_\_\_\_\_

- B. If either type of leave is granted is the employee paid while on leave?

Hourly Salary  
Yes No Yes No

Sick leave..... \_\_\_\_\_

Other leaves of absence..... \_\_\_\_\_

Remarks: \_\_\_\_\_

18. Are employees paid when it is necessary to send them home because of lack of sufficient work?

Hourly Salary  
Yes No Yes No

If "yes," what is your policy as to payment (explain)? \_\_\_\_\_

FIG. 3 (continued).

## LABOR MARKET SURVEY (Continued)

19. Do you have a called-in-emergency pay policy? Yes\_\_\_\_ No\_\_\_\_  
If "yes," please explain: \_\_\_\_\_  
\_\_\_\_\_
20. A. Are paid vacations granted employees?  

Hourly		Salary	
Yes	No	Yes	No

  
B. If paid vacations are granted hourly employees please explain how the length of the vacation and the amount of vacation pay are calculated: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
21. Are all necessary tools and working supplies furnished the employees by the company? Yes\_\_\_\_ No\_\_\_\_  
If "no," please explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
22. Are work clothes furnished the employees by the company?  

Yes\_\_\_\_ No\_\_\_\_

  
If "yes," please indicate what items: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
23. Do you have a suggestion system? Yes\_\_\_\_ No\_\_\_\_  
If "yes," how are employees rewarded? \_\_\_\_\_  
Per cent of savings \_\_\_\_\_ Flat cash award \_\_\_\_\_  
Minimum award payable \_\_\_\_\_ (if any)  
Maximum award payable \_\_\_\_\_ (if any)
24. Do you make any payments to employees laid off for lack of work during their period of layoff? Yes\_\_\_\_ No\_\_\_\_  
If "yes," please explain the basis of such payment: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
  
Are these payments repaid to the company by the employee?  

Yes\_\_\_\_ No\_\_\_\_
25. Do you pay a separation allowance to hourly employees at the time of their termination of service with the company? Yes\_\_\_\_ No\_\_\_\_  
If "yes," please explain the basis on which the allowance is determined: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FIG. 3 (continued).



Your job title: \_\_\_\_\_  
 (Title used by company cooperating  
 in survey)

Our job description:

Sweeps and cleans offices, shop areas, and lavatories.  
 Removes scrap metals and other materials from work  
 areas. Does not handle or move production materials.

Base hourly rate or base weekly salary													
(Directly below each rate, opposite "number," enter number of employees at that rate)													
Base hourly rate or Base weekly salary...\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Number.....													
Average number of hours scheduled per week: _____ hr.													

Average earned hourly rate or weekly salary of employees last week (Directly below each rate, opposite "number," enter number of employees at that rate)															
Earned hourly rate or Earned weekly salary. \$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Number.....															
Average number of hours worked last week by average employee on this job: _____ hr.															
Is this job covered by an incentive or bonus plan? Yes _____ No _____															
Comments:															

FIG. 4.—Labor-market survey—wage- or salary-information sheet.

fairly detailed descriptive summary of the job is given. The job analyst should carefully review this with the representative of the participating firm and should request that the matching job be described to him in detail. In any doubtful cases it is desirable, if possible, that the job analyst actually go out into the shop and observe the job in the participating firm. Any differences between the jobs in the two companies should be carefully noted and at this time the job analyst should, if still in doubt, evaluate the job, using his own job-evaluation plan. If it is determined that the jobs are comparable, the title (or code) assigned to the job in the company participating in the survey should be filled in on the form (see Fig. 4).

When this has been done for all the jobs, the representative of the participating concern will usually turn the form over to a subordinate for the entry of the rate or salary figures. The job analyst should emphasize the importance of the participating company's following the instruction sheet (see page 110). Two copies of the survey form should be left with the representative of each participating company, one for his files and one to be returned when completed.

All of this may seem to be a complicated and tedious procedure. However, experience with labor-market surveys indicates that only in such fashion can significant results be obtained.

### **Recapitulating the Results**

After the survey forms have been returned by all the participating companies and the data have been checked for completeness, the results should be summarized. There are two basic ways of treating the data:

1. The wage data should be tabulated to facilitate statistical computations designed to check the adequacy of the concern's existing wage and/or salary scale. This procedure is discussed in detail subsequently (Chap. X).

2. The results of the whole survey should be summarized in an easily understandable form for presentation to

- a. The concerns participating in the survey.
- b. The executives of the concern conducting the survey.

The data furnished the participating companies should include an over-all statistical treatment of the general information collected. This should cover all the items included in the original survey. In most cases the general information can be most easily recapitulated by following the format of the original questionnaire. In the case of some questions a narrative summary or a tabulation will also have to be used to make the summary clear. As an example, if 25 companies were surveyed, the data on question 10 (night-shift premium) might appear as shown in the accompanying table.

QUESTION 10—NIGHT-SHIFT PREMIUM

Question	Hourly		Salary	
	Yes	No	Yes	No
Do you have night shifts?.....	16	9	2	23
Do you pay a night-shift differential?..	11	11	0	25

Number of companies	Amount or percentage of premium	Night shift affected
3	10%	All
1	5%	First
	8%	Second
4	5%	All
3	5¢ per hr.	All
2	4¢ " "	First
	8¢ " "	Second
1	2¢ " "	First
	4¢ " "	Second

In addition to the summary of general information, a summary of the data on hourly rates and weekly salaries should be presented. Normally, the summary will be found to be considerably easier to make and to comprehend if the hourly and salary figures are presented in separate sections. If, as sometimes happens, jobs are encountered which are paid on an hourly basis in some firms and on a salary basis in others, these jobs should be included in both sections of the summary, with all the figures converted to hourly rates in the one case and to salaries in the other, with a footnote explaining the circumstances.<sup>1</sup> Aside from the absolute necessity of effectively concealing the identity of the participating firms (which is almost universally done through a simple code), there are no particular limiting factors as to the amount of detail that may be given in summarizing a labor-market survey excepting, of course, the limitations of the original survey and the amount of time and effort that it is desired to put into making up the summary.

Figure 6 is an example of a form that contains sufficient information concerning rates of pay to enable any participating company to profit considerably from having taken part in the survey. In this case, the job title as used in the firm conducting the survey is given and is followed by the job description. Then for each company, the following information is given for each job: (1) average earned rate, (2) minimum base rate, (3) maximum base rate, (4) average base rate (or single rate, if the firm does not use a rate range). This same information is, of course, also presented for jobs that are paid on a salary basis.

If it is desired to go further in analyzing and summarizing the data for the participating firms, the number of employees involved in each instance may also be included as well as the average number of hours worked. Where it is desired to present this type of information, care must be taken to avoid crowding so much data into one tabulation

<sup>1</sup> This device is the only fair method of presenting data in such cases so that all the participating firms may readily compare the jobs.

Company code	Job Title. Carpenter A				Job Title. Chauffeur			
	Job Description: Works from drawings or samples. Lays out work, fits, installs, and repairs wood trim, floors, stairs, casings, office partitions, etc. Makes and repairs office or factory furniture. Operates woodworking machinery as required. Requires no direct supervision.				Job Description: Licensed operator to drive station wagon or private automobile for hauling passengers on public highways.			
	Base rates				Base rates			
	Average earned rate	Min.	Max.	Average, or single	Average earned rate	Min.	Max.	Average, or single
1								
2								
3								
4								
5								
6								
7								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
Average								
Minimum								
Maximum								
Company median								

FIG. 6.—Labor-market wage survey; summary of hourly rates.

that it becomes a barely intelligible mass of numbers. One solution to this problem is to present such information separately on an over-all basis. Thus, the jobs surveyed might be listed in a separate tabulation together with the total number of employees, the average earned rate (for all firms), the average minimum and maximum base rates (for all firms), etc.

Once completed, copies of the recapitulation of the survey are usually sent out to the executives of the participating companies who originally authorized the participation. The recapitulation is normally accompanied by a letter of transmittal from the executive of the firm conducting the survey who originally contacted the various participants. Inasmuch as the identities of all firms are concealed in the summary, it is customary in the letter of transmittal to identify the code numbers of the firm conducting the survey and the participating firm to which the letter is addressed.<sup>1</sup> It is also customary to mention the names of all participating firms in the letter of transmittal.

Although the foregoing discussion has placed major emphasis upon the presentation of the data in a form that will be useful and meaningful to the participating companies, it must not be forgotten that this also automatically provides a good presentation for the executives of the firm which has conducted the survey. Since the pledge to maintain secrecy of identity of the participants does not extend to reasonably restricted circulation among responsible executives within the company, the results can be rendered even more meaningful by supplementing the code with an identification key.

### **Frequency of Labor-market Surveys**

Riegel, in examining the practices of 26 firms which regularly conducted labor-market surveys, reports the following frequencies:<sup>2</sup>

<sup>1</sup> This is not always necessary, since some surveys have spaces provided on the first or second page for "Our code number" and "Your code number."

<sup>2</sup> RIEGEL, *op. cit.*, p. 28.

Time Interval between Surveys	Number of Companies
3 months.....	0
6 months.....	15
1 year.....	5

These results point strongly toward fairly frequent surveys, since 21 out of the 26 firms (or 80.8 per cent) conducted two to four surveys per year, whereas only 5 firms (or 19.2 per cent) were satisfied with one per year.

In considering how frequently to survey the labor market, it must be remembered that the successful completion of a good survey is a difficult and time-consuming task. This is true not only for the concern conducting the survey but also for the participating companies. It is felt, accordingly, that in normal periods of labor and economic stability, a labor-market survey conducted once a year will adequately fulfill the needs of the average organization while at the same time saving unnecessary expense and effort. However, in periods of rapid economic expansion or contraction or in periods of labor unrest it may well be advisable to conduct surveys every 6 months or, in exceptional cases, even more frequently.

Where there is a union agreement in effect, the survey should normally be started about 3 months prior to the expiration of the agreement. This will provide sufficient time for satisfactory completion of the survey and will give management an opportunity to analyze the results prior to entering into negotiations over a new contract. Since the general wage level will inevitably be discussed at the time of these negotiations, it is essential that management know the position of the concern's wage and/or salary scale relative to that of the balance of the industry or community at the time of entering into negotiations with the union.

In conclusion, it might be pointed out that, as the importance of labor-market surveys is becoming more widely



appreciated in industry, many firms are being asked to participate in such surveys by other companies, by trade and industry associations and by governmental agencies, to the point that it is becoming a real burden. If better surveys were made at less frequent intervals, this problem could in some measure at least be alleviated.

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## CHAPTER X

### DETERMINING THE WAGE SCALE

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After completing the evaluation of the jobs and the classification of the employees working on them, the next step is to utilize the results of the labor-market survey in determining the monetary value of each of the jobs.<sup>1</sup> However, this step cannot be taken without careful preliminary thought and preparation. In particular, before the actual monetary worth of the evaluated jobs can be determined, it is necessary that certain fundamental questions of overall wage payment policy be considered and settled. These are

1. Shall the same wage scale be used for clerical and manual jobs?

2. Shall differentials be established in the wage scale because of the sex or age of the employees?

3. Shall each individual job be assigned a separate single rate or rate range? If each job is separately considered, how many different single rates or rate ranges will this procedure necessitate?

4. Shall the jobs be grouped into classes or labor grades instead of being considered as individual jobs, each with its own individual rate or rate range? If so, how many groups or labor grades shall there be?

5. If the jobs are to be grouped into a given number of labor grades, shall each group of jobs (*i.e.*, each labor grade) be assigned a single rate or a rate range?

<sup>1</sup> The usefulness of the results of a labor-market survey is not, of course, limited to the initial determination of a wage or salary scale. The data are equally valuable in checking the adequacy of wage or salary scales that are already in existence and in use. As a matter of fact, this latter is the more typical case, since the number of existing wage scales greatly exceeds the number of new scales that are effectuated each year.

6. If rate ranges are to be used in conjunction with each labor grade, what shall be the extent of each rate range?

### Shall the Same Wage Scale Be Used for Clerical and Manual Jobs?

It has long been the custom of industry to compensate clerical positions on a lower over-all monetary basis than manual positions. However, it is daily becoming more difficult to justify the existence of this historic differential. The prime reason for its existence, from a practical point of view, is that it is usually possible to hire all the skilled clerical help required at rates that are sometimes less than the lowest rates paid for manual jobs.<sup>1</sup> A second commonly encountered justification for the clerical-manual differential is the claim that manual jobs are harder and dirtier and should therefore be paid more in order to compensate for the less desirable working conditions. It is usually quite true that manual jobs are harder and dirtier and no discerning individual would argue against this fact. However, it must be kept in mind that if the same job-evaluation plan is used to cover both manual and clerical jobs, proper recognition will be given to the factor of working conditions even though the same wage scale is used for both types of job.

A third argument commonly used in justification of lower wage scales for clerical jobs is that such jobs traditionally offer certain privileges and advantages that do not exist, or exist to a lesser degree, in the case of manual jobs. In this connection, items such as vacations with pay, sick leave, and greater job security are usually mentioned. Although it is true that at one time these benefits were almost exclusively associated with clerical jobs, this is by no means the case at the present time. Today through

<sup>1</sup> Mr. Albert S. Regula quotes one case as follows: "... a company had set the hiring rate for factory employees at 70 cents an hour, or \$121 a month, while the minimum hiring rate for office help was \$85 for men and \$75 for women . . . ." Personnel Series No. 58, p. 28, American Management Association, New York, 1942.

the efforts of unions, certain liberal managements, and some governmental agencies, these benefits are often bestowed on those performing manual jobs. Furthermore, in recent years the unionization of white-collar workers has increased rapidly and this trend will probably continue, if for no other reason than to gain monetary equality for salaried personnel. A fourth factor commonly alleged to justify lower pay for clerical jobs is the greater social prestige connected with so-called white-collar jobs. This meant more formerly than it does today. In many modern shops, the working conditions are quite comparable to the working conditions in many offices. Furthermore, the vocational training courses offered in the public schools and the influx of middle class persons into manual jobs during the war have done much to increase the social prestige of industrial craftsmanship.

In view of the general insubstantiality of the arguments in support of a manual-clerical pay differential as such, any concern that is reviewing its wage and salary scales would do well to consider the possibility of using the same monetary scale for both types of work, thus permitting differentials to be established on the basis of the actual work performed. However, to be thoroughly practical, the final determination as to whether or not to use the same wage scale for both types of job should be made only after all the following points have been carefully weighed and considered:

1. The current and anticipated profit picture of the company both as a separate concern and as a part of an industry.
2. The intangible morale benefits to be gained by eliminating the differential.
3. The pressure being exerted or apt to be exerted through collective bargaining.
4. The availability of an adequate supply of clerical labor.
5. The adjustments that might have to be made on the executive and administrative pay roll if the manual and clerical wage structures were equalized.

6. The probability that equalization of the wage scales would lead to equalization of all employee benefits for manual and clerical jobs.

### Shall There Be Differentials on the Basis of the Sex or Age of Employees?

In industry women have typically been paid less for the same work than men. Even today, many concerns have one wage scale for men and a lower scale for women, the difference being determined solely by sex and having no relation to the work performed.

As in the case of the manual-clerical differential, the principal argument justifying a separate wage scale for each sex lies in the economic fact that women can usually be hired for less than men for the same work. However, the ultimate objective of any program of wage and salary determination and administration should be to identify, evaluate, and assign a fair monetary value to the jobs in the concern on the basis of (1) the differences between the jobs themselves (not the people working on the jobs) and (2) the prevailing market worth of the jobs (again jobs and not people). A sound industrial-relations corollary to this objective would be to adopt the policy of treating "all employees in a like situation alike."<sup>1</sup>

In addition to the evident social justice of this thesis, there are forces of collective bargaining<sup>2</sup> and government at work<sup>3</sup> which make it necessary in many plants, industries,

<sup>1</sup> A. L. KRESS, "Gearing Wage Payment Policies to a Wartime Economy," p. 21, Personnel Series No. 58, American Management Association, New York, 1942.

<sup>2</sup> For example, clauses from the agreements entered into by two large firms read as follows: "The company agrees that there shall be no discrimination between male and female employees. The principle of equal opportunity and equal pay shall prevail." "Wage rates for women shall be set in accordance with the principle of equal pay for equal work. Equal work is defined as work of comparable quantity and quality on comparable operations."

<sup>3</sup> Legislation enacted recently in the State of Washington provides that an employer is guilty of a misdemeanor if, in the payment of wages, he discriminates in any way between male and female employees. It is also provided, however, that wage differentials based in good faith on a factor

and areas that the same wage scale be applied to jobs held by both men and women.

One objection frequently raised against the usage of the same wage scale irrespective of sex is the fact that if women and men are working on the same job they rarely perform the same work. It is true that women cannot exert the same lifting, pulling, or pushing force as men and consequently on many jobs the women will perform the lighter portions of the task and the men the heavier. Likewise, in some situations the women, owing to inexperience, will not be able to perform some difficult portion of the job. An example might be the woman lathe operator who requires assistance in setting up the machine while the male lathe operator may be performing his own setups. In this example different jobs are actually being performed by the male and female operators. If the jobs in a plant are properly delineated, instances such as indicated above will automatically be recognized as cases involving *different jobs* and these will, upon evaluation, probably fall at different points on the wage scale. In view of this, it is evident that proper identification and description of jobs will eliminate any need for arbitrarily established wage differentials.

As in the case of male-female wage differentials the practice of having separate wage scales for men and boys (or for women and girls) undoubtedly originated as the result of the difference in the general market value of the respective categories of labor. Again, as in the case of sex differentials, it is felt that the age of the employee should have no bearing on the determination of the wage scale to be used. Precisely the same reasons may be offered in this instance, namely, that proper identification and description of the jobs will at the time of evaluation automatically determine any differentials that may actually be justified.

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or factors other than sex will not be a violation of the act. See Digest of State and Federal Labor Legislation, *U.S. Department of Labor Bulletin 63*, p. 54, 1944.

The states of Illinois, Michigan, New York, and Montana have similar legislation.

Generally speaking, the fairest and most equitable wage policy is one that does not discriminate in any way because of the fact that the job is manual or clerical or that the individual employee is male or female, old or young. Such a policy places the emphasis where it rightly belongs when establishing the wage scale—on the job itself rather than on the person doing the job.

### **Types of Base Rate**

An examination of the basic methods of compensation that may be used reveals that there are four possibilities. A concern may establish (1) a single rate for each individual job, (2) a rate range for each individual job, (3) a single rate for groups of jobs (labor grades), (4) a rate range for groups of jobs (labor grades).

### **Single Rate or Rate Range for Each Individual Job?**

It is not at all unusual to find anywhere from 50 to 400 evaluated jobs in existence in an organization, the number varying, of course, with the size and complexity of the concern. If the lowest rate paid in a given concern were 60 cents per hour and the highest rate were \$1.60 per hour, it is possible that, if each individual job were assigned a single rate, the jobs would scatter at 1-cent intervals over the entire scale. For example, one job might be paid 69 cents per hour, another 70 cents per hour, another 71 cents, etc. One of the difficulties raised by this mode of compensation is that a very unwieldy wage structure is set up. It is very difficult to explain or sell to the supervisors or workers concerned why there are so many different rates separated by such small increments. The reason for the existence of this difficulty is that this method of compensation presupposes a degree of accuracy of the job-evaluation plan used that is incompatible with the known adequacy of pooled judgments. At best, pooled judgments give only moderate reliability of results, and it is certainly unwise to assume almost 100 per cent accuracy and reliability as must

be done if a very refined set of monetary distinctions is to be used.

A range of rates can also be used to compensate individual jobs. As an example, one job might have a rate range of 60 to 75 cents, the next job a range of 61 to 76 cents and the next job a range of 62 to 77 cents. This basis of compensation suffers from all the objections cited above in the case of the single rate for each job, and in addition it introduces the complexity of a tremendous overlap of the rate ranges which is difficult to justify or adequately explain.

It is evident that for most organizations the establishment of single rates or rate ranges for each individual evaluated job will lead to innumerable difficulties. Aside from grievances and employee and supervisory dissatisfaction, it is almost inevitable that unnecessary complexities of cost accounting, pay-roll distribution, and timekeeping will also develop.

### Labor Grades

To overcome the difficulties mentioned above, most concerns have established labor grades which are merely "slots" into which groups of comparable jobs are placed. Subsequently, either a single rate or a range of rates is then assigned to each separate labor grade, and all jobs in that labor grade take the same single rate or rate range. As an example, a company having 100 evaluated jobs might decide to divide the jobs, on the basis of their respective total points after evaluation, into 10 separate groups, thus establishing 10 labor grades.

The number of labor grades used in industrial practice generally ranges between 10 and 15. Riegel refers to one company that utilizes 16 labor grades and to another company that has 15 labor grades.<sup>1</sup> The Westinghouse Electric Corporation uses 10 labor grades; the widely used plans

<sup>1</sup> JOHN W. RIEGEL, "Wage Determination," p. 72, Bureau of Industrial Relations, University of Michigan, 1937.



recommended by the National Metal Trades Association and the National Electrical Manufacturers Association utilize 12 labor grades; the Pennsylvania Company uses 14; and the American Rolling Mill Company uses 25.<sup>1</sup> One authority, Mr. Carroll E. French, concludes " . . . you can easily arrive at 10, 12, or 15 broad groupings into which every one of your jobs can be placed."<sup>2</sup>

The accompanying table illustrates a distribution of 14 labor grades which was devised for use with the point plan described in Chap. IV and which can be used as a guide in any specific installation.

POINT RANGES FOR LABOR GRADES		Labor grade
Point range	Minimum Maximum	
0-169		1
170-195		2
196-221		3
222-247		4
248-273		5
274-299		6
300-325		7
326-351		8
352-377		9
378-403		10
404-429		11
430-455		12
456-481		13
482-up		14

### Single Rates or Rate Ranges in Conjunction with Labor Grades?

Some companies assign a single monetary rate to each labor grade, and the rate for the labor grade is then automatically applied to all evaluated jobs falling in that category. Thus if the ninth labor grade were assigned a rate of \$1.20, using the example illustrated in the above table, any

<sup>1</sup> C. CANBY BALDERSTON, "Salary and Wage Setting," p. 30, Institute of Management Series No. 17, American Management Association, New York, 1936.

<sup>2</sup> CARROLL E. FRENCH, "Job Classification Structure," p. 10, Personnel Series No. 49, American Management Association, New York, 1941.

evaluated job, the total points for which fell between 352 and 377 inclusive, would automatically be assigned the rate of \$1.20 and in turn all persons working on any such job would likewise be given the rate of \$1.20 per hour.

Other companies assign a rate range to each labor grade. In this case every evaluated job falling in the labor grade concerned would automatically carry the rate range of that labor grade. In turn, each employee working on any of the jobs in the labor grade would receive a rate of compensation which fell within the rate range of the job. Thus, if the rate range of the ninth labor grade were \$1.10 to \$1.30, all jobs falling in that grade would automatically have a rate range of \$1.10 to \$1.30 and all employees working on these jobs would receive an hourly rate of pay of not less than \$1.10 or more than \$1.30.

Both single rates and rate ranges have been used successfully in conjunction with labor grades. Any final decision as to which to adopt will be greatly influenced by collective bargaining, industry or area practice, past practice in the concern, and a variety of local management considerations such as the type of incentive plan (if any), the cost and estimating systems used, etc. With such an array of factors, it is manifestly impossible to arrive at any simple formula that will indicate whether single rates or rate ranges should be used. To those desirous of making a selection it may be helpful however, to outline the advantages which the protagonists of the two methods discern in them.

The users of single rates for labor grades can correctly point to the fact that this practice facilitates and simplifies timekeeping and pay-roll procedures as well as the estimation of costs. In addition, single rates are essential wherever a piecework wage-incentive plan is in use. It is also claimed that the use of a single rate for groups of jobs prevents supervision from exercising favoritism because no discretion is allowed as to where in a range of rates an individual employee may be placed. However, this latter

point is more of a criticism of the type of supervision involved than it is of the use of rate ranges. If any supervisor is determined to favor an employee unduly, he can readily find means of so doing even when restricted to the use of a single rate. Many devices may be used such as too rapid promotion, assignment to the easier bonus jobs (if such exist), granting of more than a fair share of overtime, generosity with time off, or freely granting the numerous small favors that are within the range of prerogatives of most supervisors.

The use of rate ranges in preference to single rates is popular with management<sup>1</sup> because this device permits employees to receive an individual rate of pay commensurate with their demonstrated merit and ability on the job. If an equitable merit-rating plan is used as a guide in determining the specific rate which the employee should receive within the rate range and if this plan is fairly administered, it is felt that the use of rate ranges is superior to the use of single rates since employees are thus given an added incentive to work more efficiently. Unfortunately, however, all too often the determination of where the employee's rate should fall within the rate range is not done systematically or fairly. In situations of this kind, the supervisor's favorite or the aggressive employee who exerts the most pressure is likely to progress to the top of the range rapidly while the quiet person who may be an equally good or even better worker is likely to be overlooked. Such conditions, resulting from improper control over the use of ranges of rates, have led to growing demands by organized labor for automatic progression within each rate range purely on the basis of time. This procedure, of course, nullifies the incentive value of a range of rates as far as management is concerned. It should be pointed out, however, that it has gained headway largely because of the failure of many man-

<sup>1</sup> For example, a recent unpublished survey by the authors reveals that, out of 78 companies contacted, 56 (or 74 per cent) used rate ranges and the balance of 20 (or 26 per cent) used single rates.

agements properly to administer an equitable merit-rating plan.

### Number and Extent of Rate Ranges

If it is decided to use rate ranges, it is necessary to determine both the number and the extent of the ranges that are to be established. The number of ranges is determined simply by the number of labor grades. The monetary spread of the rate range of each labor grade will depend on the range considered desirable for the purpose of rewarding meritorious employees. It is generally recognized that any range of much less than 20 per cent will not provide sufficient incentive. On the other hand, too wide a range will result in possible administrative abuse since the determination of the position in the range which any specific employee should occupy is progressively more difficult to make and justify as the range broadens.

In industrial practice the monetary range assigned to the labor grades usually has the maximum rate from 15 to 25 per cent above the minimum rate.<sup>1</sup> Salary ranges as great as 50 per cent are frequently encountered, which is probably in most cases merely a reflection of the fact that job-evaluation plans are less frequently used in conjunction with salaried occupations. Where a job-evaluation plan is applied to salaried jobs there is no reason why the same range that is used in the case of hourly jobs could not be used for the salaried jobs.

One mistake that is sometimes made in establishing rate ranges is to apply the same constant monetary spread to each labor grade. This either penalizes one end of the scale or is excessive at the other end. As an example, if the rate range of the first labor grade is 50 to 60 cents per hour, the difference is 10 cents per hour and results in a range of 20 per cent. However, if the rate range of the

<sup>1</sup> C. CANBY BALDERSTON, "Wage Setting Based on Job Analysis and Evaluation," p. 56, Monograph No. 4, Industrial Relations Counsolors, Inc., New York, 1940.

ninth labor grade is \$1.20 to \$1.30 per hour, the absolute monetary difference is still 10 cents per hour but the rate range is now only 8 per cent instead of 20 per cent. A constant difference of about 20 per cent between the minimum and maximum rate of each labor grade is a more logical and equitable procedure and will generally prove to be more satisfactory in practice. However, it should be borne in mind that in every specific case the extent of the range of each labor grade will also be influenced by industry customs, past practice in the concern involved, and, possibly, collective bargaining.

### **Determination of the Monetary Value of Labor Grades**

Regardless of whether single rates or rate ranges have been selected for use, it quickly becomes apparent that the most important question of all still remains to be answered: What shall be the actual monetary values of the single rates or rate ranges? At the outset it must be emphasized that such a question touches upon very important and basic aspects of management. Certainly the relation of the cost of labor to all other costs will have to be considered as will the entire current fiscal status of the firm and particularly such established policies and past practices as apply. In addition, in some instances the results of collective bargaining may have to be given due weight, or the existence of state or federal legislation may exert an influence. Finally, over the entire picture there is always the variable of trends in cost of living that may or may not be so obtrusive as to demand attention. Taken together, these factors obviously do not readily or simply combine or sum up into easy or elementary answers. The decisions involved in arriving at a sound and workable wage scale are both difficult and fraught with danger for they may determine the solvency or insolvency of the business.

In view of the importance of the decisions involved and the possible variety and complexity of factors that must be considered it is not unnatural to expect that the deter-

mination of the wage scale to be used should be given most careful and serious attention. Unfortunately the opposite is often the case. It is not at all unusual to find a firm exercising the greatest of care in describing jobs, setting up an evaluation plan, evaluating the jobs, and classifying the employees and then simply accepting the current minimum and maximum rates in the organization as the two extremes of the new scale, with the labor grades sandwiched in between at intervals. There is no good reason to accept on faith any existing wage scale. On the contrary, it cannot be too strongly emphasized that the best course of action is to be doubtful about the adequacy of the scale until a thorough investigation has been conducted and a decision has been reached on the basis of the facts.

Those firms which secure the necessary facts by surveying the community or industry for information as to their wage scales have, upon analyzing the results of their surveys, three possible courses of action:

1. They may deliberately adopt the policy of being leaders (or may be forced into it). Such firms maintain a wage scale that is on the average 5 to 10 per cent (or occasionally even more) above the average of either the concerns in their own industry or the better firms in the same geographic area. Since this policy decidedly facilitates employment, it is often encountered in periods of labor scarcity, particularly when the scarcity coincides with need for rapid expansion on the part of the firm or firms involved. Although it is easy enough to decide to become a leader in comparison with the other local or industry wage scales, it is not always so easy to withdraw from this sometimes unenviable position. Accordingly, it is very important that the long-term possibilities of such a policy be most carefully considered in advance. It is also wise to examine critically the claims that are likely to be encountered to the effect that a wage scale definitely above the industry or area average will attract employees who will be more productive per man-hour. Although such claims

sound logical, it will be found that their substantiation is extremely difficult.

2. They may deliberately adopt the policy of being "tailenders" (or may be forced into it). Such firms normally maintain a wage scale that is appreciably lower than the average for the industry or area. There are a number of possible reasons for this:

- a. The concern may be part of an industry that is forced to operate on a bare marginal profit, sometimes due to gradual displacement of the industry by technological change and sometimes due to other competitive problems peculiar to the industry.
- b. The concern may be the victim of poor management, which has resulted in the dissipation of profits and depletion of capital.
- c. The management of the concern may mistakenly feel that a minimal wage scale tends to increase an already acceptable margin of profit.
- d. The concern may be in its formative stages, struggling for existence on small capital.

There is little doubt that in the long run the policy of maintaining a wage scale that is *appreciably* lower than the industry or area average makes the securing of an adequate labor supply a difficult task. As a general rule, a low scale also tends to increase labor turnover because employees readily leave to secure higher paid jobs elsewhere. Operating expense and overhead are increased as a consequence since the training of new employees is expensive and they function at low efficiency during their break-in period.

3. They may adopt the policy of maintaining their wage scale at or near the average of the industry or area. In most instances, this policy will probably be found to be the most logical and satisfactory one for the majority of concerns. The following four-point wage program may be regarded as basic to this approach. An average wage structure should be characterized by

- a. A base rate structure equal to the average of the industry or area both as to the absolute amounts of money paid and the relations of those amounts to one another (*i.e.*, the slope of the base rate curve).
- b. Average earned rates that are comparable to the averages of the industry and area both as to the absolute amounts of money paid and the relation of those amounts to one another (slope of curve).
- c. A minimum hiring rate that is equal to the average of the industry or area.<sup>1</sup>
- d. An aggregation of miscellaneous additions to income or industrial-relations policies (such as paid vacations, subsidized insurance coverage, holidays, or night-shift premium) that are reasonably comparable to the practices of a majority of the concerns in the industry or area.

Regardless of whether a firm decides to be high, low, or average in relation to the industry or area, the same fundamental need exists in all cases for proper utilization of adequate information about the firm's own wage scale and the scales existing in the industry or area. This is logical since only by a careful analysis of the wage structure of the company concerned in relation to industry or area wage structures is it possible to arrive at a sound factual basis for determining specifically what changes, if any, should be made. The prime difficulty that is commonly reported by those attempting to analyze and compare wage-scale data is that there is so much information that it is hard to reduce all of it to a compact and reasonably simple form. Actually, this is largely a statistical problem and arises almost exclusively in connection with the summarizing and comparing of base or earned rates or salaries on an over-all basis. There are so many figures for so many

<sup>1</sup> As used here, "minimum hiring rate" means the minimum rate of the lowest rate range in the wage structure, or, in the case of single rates, the lowest single rate assigned to any job in the concern.



jobs and firms that the inexperienced person is dismayed and tends to feel that he faces a hopeless task in trying to boil them all down into some useful form. Fortunately it is easy to dispel such feelings of hopelessness and dismay because of the existence of fairly straightforward statistical techniques for the condensation of sets of wage data into smooth best fitting curves.<sup>1</sup> The analyst who learns to construct and compare such curves has conquered the major problem involved in the mechanics of data analysis. With this out of the way, he is in a position to recognize more clearly that the most critical problem facing him is not a statistical or mechanical one at all. On the contrary, it is a problem of judgment—of deciding just where, in relation to industry and area policies and practices, the firm really wants to and can afford to stand.

Unlike the situation with respect to analysis of basic rates and earned rates, in the case of minimum hiring rates and miscellaneous additions to income (paid vacations, insurance, etc., as already mentioned), there is less of a tendency for confusion to arise. This is so because here the mechanics of comparison never get very complex. There is no problem, for example, in computing a simple average of the minimum hiring rates of all the firms included in a labor-market survey. This average can then very straightforwardly be compared with the minimum hiring rate of one's own concern. Similarly, it is almost entirely a non-statistical problem to compare the elements of vacation plans, insurance plans, and the like. As a consequence, it is easier in such cases to recognize that the most important problem is that of deciding just how far to go in meeting the competition that the analysis reveals.

The preceding two paragraphs have indicated generally the four basic comparisons that are needed in order to arrive at a reasonably well-grounded set of conclusions about any wage structure. These four comparisons are

<sup>1</sup> The whole question of "curves of best fit," calculated by the method of least squares, will be discussed in detail later in the chapter.

(1) of basic rates, (2) of earned rates, (3) of minimum hiring rates, (4) of miscellaneous additions to income.

Although it has been correctly pointed out that the mechanics of preparing the data to facilitate these comparisons ranks second in importance to the judgments involved, it is nonetheless evident that the judgments depend upon the proper treatment of the data. It is proposed, therefore, to devote the remainder of this section of the chapter to an exposition of a set of procedures by means of which such comparisons can be made, together with some observations concerning their purpose and the nature of the judgments that must accompany or follow them.

### 1. Comparison of Base Rates

Four steps are involved in setting up base-rate data in a form which will facilitate comparison. Briefly, these are

1. Determine the median base rates currently paid for each labor grade by one's own company and by the companies that participated in the labor-market survey.

2. Plot the median base rates against the labor grades on graph paper. Make one plotting for one's own firm and another for the firms surveyed.

3. Draw a smooth line of best fit through the plotted points on each sheet of graph paper. These best fitting curves should be calculated by the method of least squares because they are actually the basis of all comparisons.

4. Replot the two best-fitting curves on one sheet of graph paper. The curves are now ready for comparison.

With the sequence of events roughly outlined, it is now possible to consider each step in the sequence in greater detail.

**Step 1.**—The determination of the median base rates currently paid for each labor grade in one's own firm requires an analysis of the firm's pay roll. This should begin with a listing of all the jobs in the concern by labor grade. If, for example, there are 14 labor grades, this

means that there will have to be 14 lists of jobs, one for each labor grade, each list containing only the jobs that fall within that particular labor grade. When this has been done, the base rate of each employee on the pay roll should be tabulated under the heading of the labor grade that is appropriate for the job to which the employee is classified. If there are 14 labor grades, there will, accordingly, be 14 tabulations of base rates. These tabulations should be set up in rank order from highest to lowest (or vice versa). The rate that is exactly in the middle<sup>1</sup> of each of the 14 rank-order tabulations is then selected. These middle rates constitute the median base rates for the 14 labor grades.

In general, the median will be found to be the most desirable type of average to use for wage-comparison purposes. This is so because the more commonly encountered arithmetic average (or mean) gives full, and often undue, weight to a small number of extremely high or low rates, whereas the median does not. This is a very important point in establishing a basis for over-all comparison of wage scales

<sup>1</sup> The position of the middle (median) rate in the rank-order grouping of rates is determined by the simple formula  $(N + 1)/2$ , in which  $N$  equals the total number of rates listed in the rank-order grouping. Note that this formula merely tells us the *position* of the median rate and not the *value*. Thus, if there were 13 employees working on the various jobs in one labor grade, the median rate would be the seventh from the top (or bottom) of the rank-order list. To find the value of the median it is then necessary actually to count up (or down) the required seven. For example:

Base Rate, Cents	No. of Times This Rate Occurred
62	1
64	2
65	1
66	2
67	3
68	2
69	1
70	1
	<hr/> N = 13

The seventh value, counting from either top or bottom, is 67 cents. This, then, is the median rate.

See A. E. WAUGH, "Elements of Statistical Method," pp. 65-67, 92-97, McGraw-Hill Book Company, Inc., New York, 1943.

because it is definitely misleading to figure in the full weight of the atypical cases.<sup>1</sup> The determination of the median base rates currently paid for each labor grade by the companies participating in the labor-market survey requires almost exactly the same approach as does the analysis of one's own pay roll. The jobs that were used in the labor-market survey should be listed by labor grades and then all the rates for all the jobs falling under each labor grade should be tabulated in rank order. The required information should be very easy to secure, since the format of the labor-market survey wage-information sheets should be so designed as to reveal precisely what is needed (see Wage or Salary Information Sheet, page 109). Upon completion of the tabulation of the rates in rank order for each labor grade the median rate for each labor grade should be identified.

**Step 2.**—The median rates should now be plotted on plain graph paper. The scale of the paper should be such that the plotted points may easily be read off to the nearest cent. The use of logarithmic or semilogarithmic paper should be avoided unless the work is being done by a competent statistician or mathematician.<sup>2</sup>

The graphs should be set up so that the monetary range of the median base rates is on the vertical axis (ordinate) and the labor grades are on the horizontal axis (abscissa). Figure 7 illustrates how such a plotting might appear in a hypothetical situation. There should be two sets of

<sup>1</sup> An excellent example of the inflation that can result from using the arithmetic average (mean) is to be found in the calculation of the average annual income of wage earners in the United States. A widely quoted example is that for the year 1918, when the *mean* (arithmetic average) annual income was \$1,690, whereas the *median* annual income was only \$1,170. The reason for this great difference lies in the fact that the extremely large incomes of a relatively small number of persons were heavily reflected in the arithmetic average but were not in the case of the median.

<sup>2</sup> Such graphs should never be published without explicit and careful explanation as to what they are and how they should be read. Failure to do this can easily lead to an uncomfortable period devoted to explaining to employees why such curves do not look like the nonlogarithmic curves in terms of which they normally tend to think.

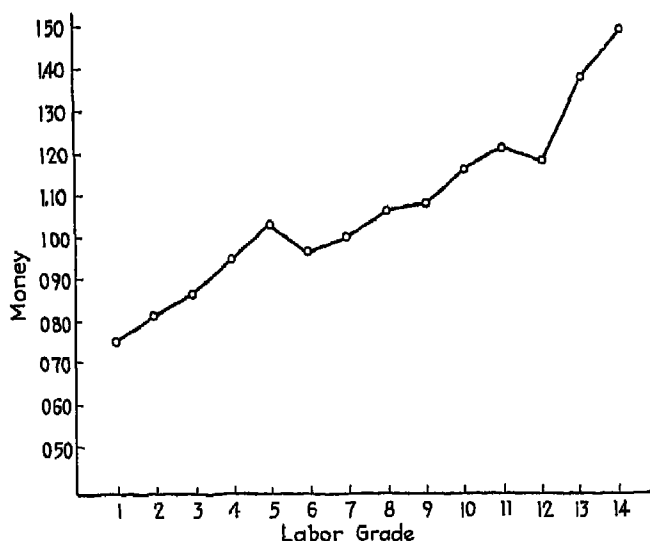


FIG. 7.—Median base rates plotted for fourteen labor grades.

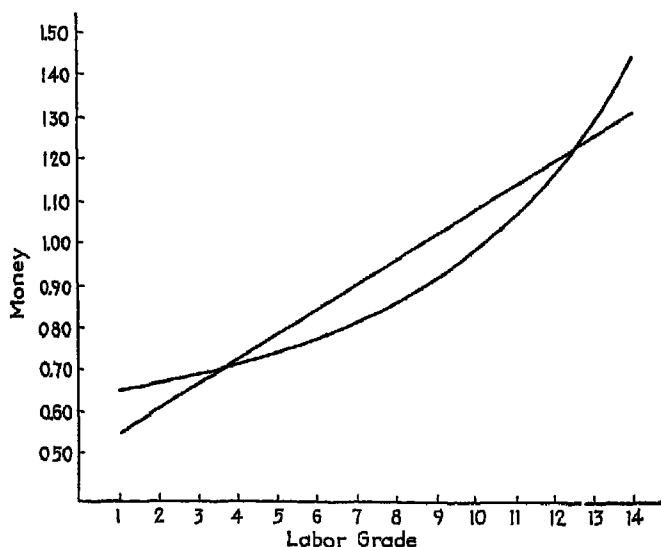


FIG. 8—Two composite earning curves computed from the same wage data. A wage structure based on the parabola will pay higher rates for the extremes and lower rates for the intermediate labor grades, as compared with a scale based on the straight line.

plotted points on two separate graphs as the end result—one for one's own firm and one for the industry or area, derived from the labor-market survey.

**Step 3.**—Upon completion of the plotting of results, as outlined above, a line of best fit should be drawn through each of the two sets of plotted points. It should be remembered that this line of best fit may on rare occasions be a straight line, but is generally much more likely to be a parabola (*i.e.*, a second-degree curve). It is highly probable, therefore, that the mere drawing of a straight line which looks like a good fit on the basis of visual inspection will lead to erroneous results. If the earning curve is determined to be a straight line when it really should have been a parabola, the effect will be to overpay those jobs that fall along the middle of the curve and to underpay those jobs at the extremes of the curve. The amount of error will of course be determined by the shape of the curve. Figure 8 illustrates this type of situation and is based, with slight modifications, upon an actual case.

Because the dangers of error that are involved in estimating a straight line of best fit by visual inspection are greatly increased when an attempt is made to estimate a best fitting parabola, it is definitely preferable to *calculate* the necessary curves by means of the appropriate mathematical formulas. For both straight lines and parabolas, the most desirable practice is to use the method of least squares. Although tedious for more complex curves, the method involves only a nominal amount of work in the case of first-degree (straight-line) and second-degree (parabolic) curves. Inasmuch as almost every standard textbook on statistics contains a detailed account of the steps involved in calculating least squares curves, the reader is referred to such sources for the actual procedures.<sup>1</sup>

<sup>1</sup> See F. C. MILLS, "Statistical Methods Applied to Economics and Business," Henry Holt and Company, Inc., New York, 1938. Also, A. E. WAUGH, *Elements of Statistical Method*, McGraw-Hill Book Company, Inc., New York, 1943. In the use of the method of least squares it is important to heed one point that may readily be overlooked. The method will provide

**Step 4.**—Once the two best fitting curves have been properly determined, it will greatly facilitate comparison if they are replotted on a single sheet of graph paper. In this form, the base-rate structure of one's own firm may be simply and directly compared with the composite base-rate structure of the industry or area. Figure 9 illustrates a

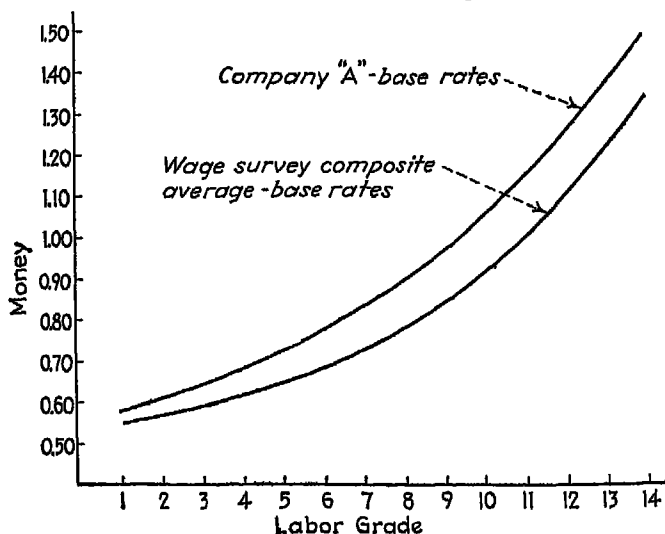


FIG. 9.—Two best-fitting parabolas drawn on one graph to same scale. In this instance the two curves reveal a fairly orderly set of differences between Company "A" and the composite average drawn from the wage survey. This is not always the case. Sometimes the curves even cross one another.

pair of curves that were derived as indicated in the foregoing steps.

In comparing the curve of one company's wage structure against the curve developed for the other concerns which participated in the survey, two items should be considered: (1) absolute monetary differences and (2) slopes of curves.

the best fitting straight line or second-degree parabola for the data on hand. However, the method will *not* exercise judgment as to which should finally be used; this decision must be made by the practitioner. As has been mentioned, normally the parabola will be the more accurate choice but, in case of doubt, the only answer is to calculate both a straight line and a second-degree parabola and examine both in relation to the plotted data. Of course, in all cases where serious doubts arise, the best solution is to consult a competent statistician accustomed to working with economic data.

If the curve for the concern conducting the survey is above the other curve, then its basic-wage structure is generally higher than that of the composite average (median) of the other firms. The amount by which the one curve is above the other will, of course, indicate for each labor grade the monetary differential between the two base-rate structures. Similarly, if the curve representing the concern conducting the survey is below the other curve, then its base-rate structure is lower than that of the average of the other firms. The amount of differential at various points may be measured directly from the graph.

The absolute monetary difference between the curves at various points is important. However, the relative slope of the two curves is of equal significance. The ideal situation for most concerns would be for the two curves to be almost parallel and practically together, thus indicating that the company conducting the survey had a base-rate structure almost identical with that of the composite *average* (median) of the other concerns participating in the survey. Actually, in practice this situation is rarely encountered. It is because of this, of course, that the last stage of comparison is necessarily the stage of judgment and decision. Normally, however, it is not desirable to attempt to make a final decision as to what to do about the base-rate structure (if anything) before seeing the results as to average earned rates, minimum hiring rates, and miscellaneous additions to income.

## 2. Comparison of Average Earned Rates

In order to avoid needless repetition, it should be pointed out immediately that the four-step procedure outlined on the preceding pages is directly applicable to the handling of average earned rates. It is necessary only to substitute the term "average earned rate" for "base rate" in every instance in order to make the parallel precise.

In making an analysis of one's own pay roll it is an



excellent laborsaving practice to keep in mind the fact that both base and earned rates will be needed for later comparison and accordingly to gather both sets of data at the same time. Reference to Fig. 4 on page 109 indicates, of course, that this is precisely what is recommended in the case of the wage-information forms that are presented to the firms participating in the labor-market survey.

### **3. Comparison of Minimum Hiring Rates**

From the standpoint of analysis and comparison, this is by far the simplest set of results with which to work. The lowest rate paid (with the exception of training or learner rate) for the lowest evaluated job in the firm can readily be selected, and, for the firms participating in the labor-market survey, this information should be requested as one of the survey questions. The rates reported in the survey should be arranged in rank order and the median minimum hiring rate for the industry or area then determined. Comparison of this median with the minimum rate paid for one's own firm will at once reveal the amount and direction of any differences that may exist between the two figures.

### **4. Comparison of Miscellaneous Additions to Income**

Almost everyone who has made analyses of wage structures is impressed at some time by the occasional firm which has a base and earned rate structure that is below the industry or area composite average but which nevertheless has no discernible difficulty in recruiting and keeping better than average personnel. In order to understand the reasons for this apparently atypical condition it is generally necessary to examine in some detail what the firm does for its employees in addition to paying them their regular wages or salaries. These additional things that a firm does have been grouped under the general heading of "miscellaneous additions to income." The following is a representative list of such items:

Pension or retirement plans<sup>1</sup>

Life insurance

Health, accident, or hospitalization insurance plans

Paid sick leave

Paid holidays (*i.e.*, when not worked)

Paid vacations

Profit-sharing or other bonus plans (excluding formal wage incentive, which should be reflected in earned rate figures)

Night-shift premiums

Paid rest periods

Paid lunch periods

Call-in pay

The problem of making comparisons between one's own firm and the firms participating in the wage survey with respect to such items as the foregoing cannot be resolved by the use of formulas or rigidly standardized procedures. In spite of this fact, a reasonable amount of care in tabulating the results of the wage survey will enable the analyst to estimate very satisfactorily where his firm stands in relation to prevailing industry or area practice. For example, if the shop employees in only 1 out of 27 firms are granted paid sick leave, it is not unreasonable to conclude that at the time paid sick leave is decidedly atypical and can be safely ignored. Conversely, if one's own firm is the only one in the industry or area that does not have a paid vacation plan, it is not difficult to conclude that the desirability of modifying the existing policy should be seriously considered by management.

All the possibly desirable changes that may have been noted as a result of the comparisons of base rates, earned rates, minimum hiring rates, and miscellaneous additions to income should be carefully noted down as the comparisons progress. Because the various comparisons are all

<sup>1</sup> Note that in the case of such plans, a proportion of the cost should be borne by the firm in order for the plans to be classified under the heading of miscellaneous additions to income. This point applies to life, health, and accident insurance and similar items as well.

interrelated to some extent, no final decisions should be made until the whole process has been completed.

Since the earned rate structure and the minimum hiring rate will necessarily be altered if the base rates are changed, it is evident that it is the base-rate structure that is the key to one of the two final judgmental problems,<sup>1</sup> the other problem being that of deciding on the advisability of altering existing policies as to miscellaneous additions to income. Since this latter problem is one that does not directly affect the base-rate structure, it is of significance to the remainder of the present discussion only in the event that it is decided that the firm's policies are so liberal in this respect that they compensate for otherwise unduly low base or earned rates. However, it is safe to assume that this condition will hold true only of the minority of cases. Accordingly, it is the base-rate curve that in the final analysis must be raised, lowered, or left unchanged.

If it is decided to change the base-rate structure, then a decision must be made as to whether only some of the rates shall change (thus altering the slope of the curve) or whether all the rates shall be changed (which may or may not alter the slope of the curve, depending upon the nature of the modification). In addition, if a change is to be made, the magnitude of the change must be determined. Unfortunately, at this point further discussion is of no avail. The answers to the questions just raised can be determined only on the scene of action and only after consideration of the conditions currently prevailing in each case.

### **Assignment of Money to Labor Grades**

The difficult problem is to establish the basic-wage curve. When this has been done, the determination of the actual

<sup>1</sup> To be quite accurate, two exceptions to this statement should be mentioned: It is possible that a firm might choose to leave its base-rate structure as it is and concentrate its efforts on effecting a revision of the earned rates by means of changes in the number of hours worked or by the application of a wage-incentive plan.

monetary rates for the labor grades can be accomplished very readily. The simplest technique is to draw the final curve on a sheet of plain graph paper that is large enough to permit the rates to be read off to the nearest cent. A perpendicular line may then be erected on the graph from the point on the base that indicates the first labor grade,

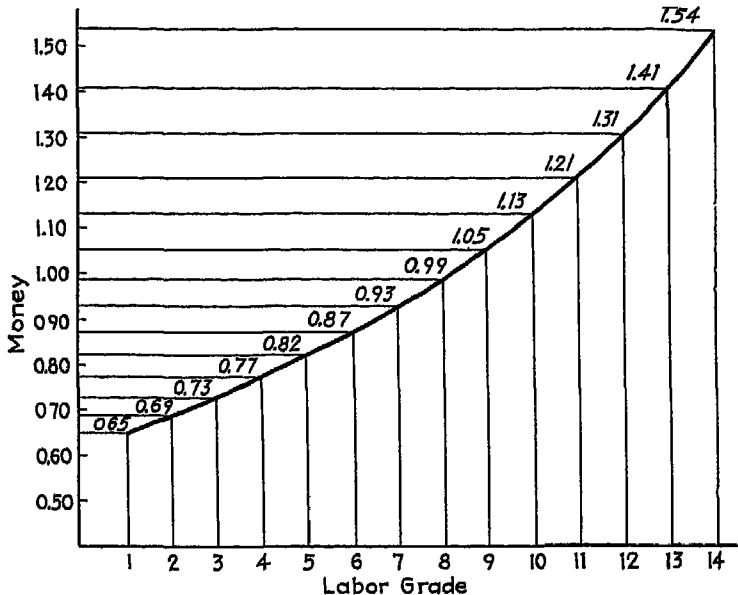


FIG. 10.—Graphic method of determining midpoints of labor grades, using smooth curve as basis of measurement.

up to the base-rate curve. From the point of intersection with the curve, draw another line parallel to the base over to the money scale and read off the proper monetary value directly from the scale. If single rates are to be used for the labor grades, this figure will be the rate for the first labor grade. Similarly, this process should be repeated for each of the other labor grades. Figure 10 illustrates how this is done.

If a range of rates is to be used for each labor grade, the single rates that have been developed must be both increased and decreased by a predetermined percentage

in order to establish the range. For example, if the single rate is increased by 10 per cent and is also decreased by 10 per cent, the maximum and minimum rates of the rate range would be established with a spread of 22 per cent. The same procedure and results would, of course, apply for each of the labor grades used in the plan adopted by the firm.

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## CHAPTER XI

# BASIC-WAGE ADMINISTRATION POLICIES

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To assure the integrity of the basic-wage structure and the job-evaluation program underlying that structure, it is essential that fair and equitable policies be established. It is not sufficient that such policies be discussed and agreed upon; they should in addition be clearly expressed in writing and amply publicized. Unless this is done, it is inevitable that the effectiveness of the basic-wage administration program will be seriously impaired since the intelligent cooperation of supervisors and employees can hardly be expected in the absence of adequate instructions and information.

It will be noted that in the preceding paragraph the emphasis has been placed on the *basic*-wage structure and on *basic*-wage administration policies. This is quite consistent with the fundamental objective of a job-evaluation program which is that of establishing a sound base-rate structure in which all jobs are equitably compensated. The emphasis on basic wages is consistent, too, with the procedures involved in determining or reviewing the wage scale, as developed in the preceding chapter, since the base-rate structure is the anchorage point for earned rates. In view of these circumstances, it is felt that the first and most fundamental problem of wage administration is the control of base rates. Although it is obviously of great importance that adequate policies be instituted with respect to such items as payment of overtime, wage incentives, night-shift premium or call-in pay, it is felt that it is beyond the scope of this book to attempt to explore the policy ramifications of these and numerous other factors that,

in addition to base rate, might contribute to earned income.

### **Policies Relating to the Installation of the Job-evaluation Program**

Unless proper preparations are made and adequate precautions are taken, it is almost certain that, at the time of the announcement of the proposed installation of a job-evaluation program, objections will be raised not only by employees and their representatives but also by supervision. One common source of concern is the fear that the rates of pay of employees will be cut as a result of the installation. In some cases, employees who suspect that their individual rates are higher than is warranted by the facts, will oppose the installation of the system for this reason and will attempt to gain converts to their way of thinking. Where rate ranges are to be used, antagonism is also quite likely to develop toward the designation of a maximum rate for each job, the argument being that the employees are thereby arbitrarily limited in the amount of progress they can achieve.

In order to offset this type of opposition and to facilitate frictionless inauguration of the job-evaluation program it is sound policy for management to announce at the outset that no employee's rate of pay will be reduced as the result of the installation of the plan. Such a declaration will go far toward removing employee fears and suspicions and will also greatly decrease the likelihood of objections from the union. One union, for example, expresses precisely this point in a booklet written for its stewards, "Where job-evaluation systems are being installed, guarantees should be obtained that no rate shall be cut because of them."<sup>1</sup>

Those worries and suspicions that still remain after

<sup>1</sup> "U. E. Guide to Wage Payment Plans, Time Study and Job Evaluation," p. 85, United Electrical, Radio, and Machine Workers of America, CIO, New York, 1943.

reassurance has been given as to the status of employees' current rates will usually be found to arise out of misinformation or no information at all. This suggests that, if any evidences of lingering distrust are observed to remain, some care should be taken to publicize adequate explanations or counterarguments. For example, in the previously cited case of concern over the restrictions on progress imposed by the use of a maximum rate, it can be explained that every job in any shop has its maximum rate even though it sometimes exists only in the minds of the foreman or "front office." It can then be pointed out that the job-evaluation installation actually systematizes and formalizes the process of establishing the proper maximum rate, thereby exposing the rate to a healthy public scrutiny. In addition, since the fact is often overlooked that a *minimum* rate is also designated, it can be shown that the employees are protected against exploitation in the form of underpayment for their work.

If it is economically feasible to do so, it is good policy, coincidentally with the installation of a job-evaluation program, to raise all employees whose rates are below the minimum rate of the rate range to that minimum rate.

Although this step will involve some cost to the company, it must be taken if employees are to have confidence that the rate schedule will be administered equitably. Such increase in pay roll as results is likely to be offset in whole or in part by improvement in employee morale.<sup>1</sup>

In most instances it will be found that the cost of this course of action will not be so great as might have been expected for the reason that in the typical installation a minority of the employees will be below the minimum rate of their rate range. After the program has been completely installed and the existing pay roll has been analyzed, the results may be expected to line up somewhat as follows:

<sup>1</sup> C. CANBY BALDERSTON, "Wage Setting Based on Job Analysis and Evaluation," p. 49, Monograph No. 4, Industrial Relations Counselors, Inc., New York, 1940.



- 10 to 25 per cent of employees below the minimum of the rate range
- 50 to 80 per cent of employees within the appropriate rate range
- 10 to 25 per cent of employees above the maximum of the rate range<sup>1</sup>

Although such figures are, of course, averages and there may be exceptional or extreme cases that would be too costly, it is reassuring to those contemplating adjusting the below-minimum rates to know that normally this will not necessitate an "across-the-board" increase.

Naturally, no changes in rate are necessary in the case of those employees whose rates are within the proper range. However, the problem of how to handle the 10 to 25 per cent of the employees who are likely to be over the maximum rates of their ranges is not easily solved. Inevitably, one of the following five courses of action must be followed: The employee can be (1) pensioned, (2) discharged, (3) demoted, (4) promoted, (5) maintained at his existing rate.

There are very few cases in which it will be found possible to pension the employee who is over the maximum rate, (1) because pension plans are still relatively rare in industry and (2) because it is not likely, if a plan should be in existence, that many of the individuals concerned would meet its requirements at the time. With respect to the possibility of discharge, it certainly would be grossly unfair to dismiss an employee solely for being above his maximum rate. There is no doubt that an immediate and catastrophic industrial-relations problem would develop were any firm to be so callous as to adopt this course of action. Similarly, the demotion of an employee solely because he is over the maximum of his rate range is so definitely inequitable that nothing but trouble could possibly be expected as a consequence.

By process of elimination, there remain only two practical ways of handling the case of the over-maximum employee: either promotion or maintenance of the employee at his existing rate. Of the two methods, promotion is obviously

<sup>1</sup> "Principles and Application of Job Evaluation," p. 20, *Studies in Personnel Policy* No. 62, National Industrial Conference Board, Inc., New York, 1944.

the more constructive course of action. However, it is necessary to wait until jobs open up, as the result of organizational expansion or labor turnover, in order to promote the employees into jobs having rate ranges that are appropriate to the rates currently being paid. This raises one difficulty that is encountered in the application of the promotional policy—the difficulty that the number of available job openings will probably be much smaller than the number of people whose rates are currently too high for their existing jobs. Another difficulty is that some of the employees may not be qualified for promotion, in which event supplementary training may have to be provided in order to prepare the employee for the promotion. Finally there probably will be some employees who lack not only the necessary training but also the ability to perform higher rated work.

If the employee cannot be promoted to a job that will absorb his rate, there is no reasonable alternative except that he be kept on his current job at the excess rate. In this case the employee should not receive any further pay increases as long as his rate exceeds the maximum of the rate range for the job. The danger in leaving an employee at a rate in excess of the maximum of the range is that the situation will always be more or less of a sore spot in the minds of other employees and may even be used by the union as one of its arguments for attempting to gain a general wage increase. As a consequence, the most practical solution seems to be that, in spite of the difficulties involved, as many as possible of those receiving a base rate in excess of the maximum of the rate range for their jobs should be promoted as rapidly as possible to jobs with a maximum rate equal to or in excess of the rate which the individual in question is receiving.

### **Policies Relating to the Rates of Pay of Individuals**

In concerns in which a single rate is used, each employee may be paid (1) at the rate of the particular job to which

he is classified or (2) at different rates as he changes from job to job. In this latter case the employee would be paid the base rate for the job for the time that he spends on that job, his rate increasing or decreasing as he works on higher paid or lower paid jobs. Under such an arrangement it is entirely possible that an employee might work on four or five different jobs in one day and, as a consequence, might receive during that same day four or five different base hourly rates of pay. From the standpoint of accurate costing this is a good device for management, and from the standpoint of the employee it is theoretically a fair device because he is paid what each job is worth. In spite of the theoretical advantage, however, there is a strong possibility that employee reaction may be negative because of the fact that under such circumstances employees find it difficult to estimate with any degree of certainty their prospective weekly or monthly earnings.

If employee and union pressure becomes sufficiently strong in favor of modification of the policy of paying single rates on a job to job basis, management may (1) relax the policy, in which event the employee would be classified (as discussed in Chap. VIII) and would, of course, be paid at the rate of the job to which he was classified; (2) adopt the policy of using ranges of rates instead of single rates.

As has been pointed out previously, most companies prefer to use rate ranges. The primary reason for this is undoubtedly to gain greater employee motivation. However, despite this admitted advantage, the use of ranges of rates poses many problems that are not encountered when single rates are used. If these problems are squarely faced and fair policies are developed as a consequence, the use of rate ranges can become a very effective instrument for the building of employee morale and good will. If, on the other hand, the policies that are adopted are unfair, obtuse, or applied in a careless, vacillating, or discriminating manner, the use of rate ranges can be a most dangerous

practice and can result in innumerable employee grievances and much labor unrest.

One big step in the direction of obviating the dangers that may be associated with the use of ranges of rates is to formulate and publicize at the very beginning two basic statements of general wage administration policy. These are

1. All employees shall be accurately classified according to the work performed by them. The logical corollary to this, that the classifications shall be changed whenever the work performed changes, requires considerable clarification and much of the remainder of this chapter is devoted to various phases of this problem.

2. No employee shall be paid less than the minimum rate of the rate range for his job nor shall any employee be paid more than the maximum rate of the rate range for his job.<sup>1</sup>

The two foregoing basic policies cannot, alone, accomplish the difficult function of covering all necessary contingencies—their function is primarily to express the broad and underlying principles of basic-wage administration policy. In addition, in order to foster more definitive control over the wages or salaries of employees and to ensure fair treatment to all, it is important that management establish clear-cut written statements of policy with respect to each of the following classes of transaction: (1) hiring, (2) transfers, (3) promotions, (4) demotions, (5) pay increases.

1. **Hiring.**—Normally, sufficient numbers of persons who are qualified to fill satisfactorily the job openings available in a concern can be secured in the local labor market. Under these circumstances it is almost always possible to hire new employees at the minimum rate of the rate range of the job on which they are destined to work. However, it may occasionally be desirable or necessary to hire

<sup>1</sup> With the exception, as previously discussed, of employees who were working on the job and earning more than the maximum rate prior to the installation of the job-evaluation plan.

unusually well-qualified persons at a rate in excess of the minimum rate for the job, although in no case should any one be hired at a rate in excess of the maximum rate.<sup>1</sup>

As a general rule it is far better to fill vacancies existing on higher paid classifications by promoting someone from a lower paid job and in turn filling the vacancy thus created by further promotion until eventually the last opening is filled by hiring outside the concern. This policy gives the ambitious employee something to look forward to and makes it possible for management to reduce labor turnover since the better employees will feel they have a chance to get ahead and consequently will tend to stay with the organization.

At times of labor scarcity or of rapid expansion of a given concern it is frequently necessary to hire completely unskilled persons and to train them to perform semiskilled jobs. In these circumstances a desirable policy might be to hire the individual at the minimum rate of the lowest paid labor grade. At the completion of the learning period, the employee should automatically receive the minimum rate of the job for which he was trained. This is, of course, the job to which the employee was classified and on which he will work.

If the learning period is sufficiently long, as in the case of apprentices, provision might well be made for scheduled increases in pay for the learner. Some concerns predetermine the time it should take to learn a job<sup>2</sup> and give the learner half the difference between the minimum rate of the job being learned and the learner's hiring rate at the conclusion of half of the learning period, provided that the learner is progressing satisfactorily. The length of the

<sup>1</sup> Some companies with low general-wage scales may in times of acute labor shortage have to hire above their maximum rate for a given job in order to secure some categories of personnel. This situation can usually be prevented by maintaining a wage scale equal to the community and industry average and by the proper training and upgrading of existing personnel.

<sup>2</sup> See R. C. SMYTH, *How to Figure Learning Time*, *Factory Management and Maintenance*, p. 94, vol. 101, No. 3, March, 1943.

learning period and the difference between the learner's hiring rate and the minimum rate of the job being learned are the principal controlling factors in determining the amount and frequency of increases during the learning period. As a general rule, where the interval is lengthy, the learner's rate should progress until at the conclusion of the training he is receiving the minimum rate of the job.

**2. Transfers.**—As a prelude to establishing wage or salary policy relating to transfers it is most important to define precisely what is meant by the term. This is necessary because, unfortunately, most concerns (and industry generally) use the terms "transfer" and "promotion" almost interchangeably. A transfer may be defined, for purposes of wage and salary administration, as "a change from one job to another, both jobs being in the same labor grade."

Following the policy previously discussed in relation to employee classification, any employee should be reclassified when transferred from one job to another. However, since by definition both the old and the new job are in the same labor grade a transfer, in itself, is not sufficient to warrant changing the employee's rate of pay.

**3. Promotions.**—A promotion, for purposes of wage and salary administration, may be defined as "a reclassification to any job in any higher paid labor grade."

If the employee's base rate at the time is below the minimum of the rate range of the new job, his rate should be increased to the new minimum, at least. This makes for consistent application of the policy of paying all employees within the rate ranges for their jobs. Some companies prefer to make promotional increases effective at the time of the promotion, for obvious psychological reasons, while others prefer to wait for a period of time (preferably a well-defined probationary period) before granting the promotional increase in order to make sure that the employee will be able to perform the new job satisfactorily. This latter policy has the advantage that it

eases the problem of subsequent readjustment if the employee fails to qualify. On the other hand, there is also a disadvantage that should not be overlooked in that management's motives may readily be misunderstood by the employees concerned. In order to prevent any such misunderstanding and to convince the employees of management's fairness it is good policy to make any delayed promotional increases retroactive to the actual date of the promotion, provided, of course, that the employee is retained on the higher paid job.

**4. Demotions.**—A demotion may be defined as "a reclassification to a job in a lower paid labor grade." Normally, demotions are brought about either as the result of the inability of an employee to perform his assigned work in a satisfactory manner or as the result of organizational contraction. In either event, in order to protect the integrity of the base-rate structure and to be fair to the other employees, it is usually necessary to make an adjustment in the base rate of the individual who has been demoted.

One policy that has worked well in this type of situation is to decrease the base rate of the employee to equal the maximum rate of the job to which he has been demoted, provided that, however, if the employee's base rate is already less than the maximum rate of the job to which he has been demoted, his rate shall not be changed. Another possible policy is to provide that the employee shall, upon demotion, be assigned a rate that occupies the same relative position within the new rate range as the former rate occupied in the former rate range. Thus, an employee at the minimum of the rate range would, upon demotion, go back to the minimum of the rate range of the job to which he was demoted, etc.

Regardless of the policy that is adopted, the best time to reduce the employee's base rate is at the time of the actual demotion. Of course, the employee should be given reasonable warning of the impending change, if at all possible, so that he can make any necessary adjustments in

his personal affairs. He is also entitled to an adequate explanation of the reasons for the demotion.

It has been assumed throughout the preceding discussion that the job change involved in a demotion is not merely a temporary change. In the case of temporary assignments to lower paid jobs, there is little point in changing the employee's base rate. However, to avoid unnecessary confusion, it is wise to establish some set of time limits in terms of which such temporary assignments may be clearly defined. Thus, if two weeks were established as the time limit, then any temporary assignment to a lower paid job that lasted beyond this time should be termed a demotion and the necessary rate adjustment (if any) should be made.

**5. Pay Increases.**—Pay increases within the rate range (*i.e.*, exclusive of promotional increases, which have already been discussed) fall into three general categories:

1. Increases given automatically on the basis of established time schedules
2. Increases given solely on the basis of the merit demonstrated by the employee
3. Some combination of these two categories

*Automatic Increases.*—Automatic increases are pay increments of fixed amounts granted at fixed time intervals.

From management's point of view the use of a system of automatic progression within the rate range has few advantages. It is alleged that turnover is reduced, owing to the fact that employees can foresee their wage increases and will want to remain on the job long enough to receive them. The causal factors of turnover, however, are so many and so complex that it is hard to prove or refute such allegations. It is also alleged that supervisors are able to devote more time to other work because automatic wage progression relieves them of the time-consuming responsibilities of reviewing their employees' records and deciding whether merit increases are due. This is a specious argument in that good supervision *must* maintain close contact



with the employees at all times regardless of the pay-increase policy in existence.

The most common objection offered by management to automatic wage progressions is that they eliminate the strong motivational force of the merit increase granted by the supervisor, the consequence of which is that employees tend to function at minimum acceptable levels of efficiency instead of at some higher levels. A related management objection is that instead of having a series of rate ranges, firms with low turnover rates tend to end up eventually with a series of single rates.

Many labor organizations strongly favor automatic wage-progression plans primarily because they are highly suspicious of merit and ability plans. It must be admitted that in many instances there has been excellent justification for labor's suspicions. Where supervision exercises arrant favoritism and where top management has failed to establish and "police" written policies, it is almost inevitable that employees will find much cause for legitimate complaint. It is evident that, if management wishes to maintain its prerogative of granting increases on the basis of merit in the face of increasing pressure toward automatic progression plans, it is the responsibility of management to institute the same orderly and defensible policies for the awarding of merit increases as it has traditionally used in relation to other phases of its operations. If, on the other hand, management decides to take the easy way out and succumb to the pressure for automatic progression, it is highly probable that the best course of action is to abandon the use of rate ranges (if possible) and revert to single rates.

*Merit Increases.*—Merit increases are pay increments granted to employees when in the judgment of their supervisors such increases are warranted. To assist the supervisor in making such determinations, most concerns which grant merit increases have found it desirable to establish definite policies and procedures.

Concerns which desire to do an effective job of granting

pay increases on the basis of employee performance are faced with the necessity of doing two things:

1. Establishing a fair and workable set of policies and procedures for periodically reviewing the status of employees in order to determine whether or not a merit increase should be granted;

2. Establishing a fair and workable set of policies and procedures governing the amount and possible frequency of merit increases.

To be adequate, the periodic review of employee merit requires the use of some type of formal merit-rating plan. This is discussed in detail in Chaps. XII to XVI.

*Other Possibilities.*—There are many possible ways of handling employee pay increases other than purely automatically or purely on the basis of merit as previously defined.

One of the cardinal objections of organized labor to the merit approach is the contention that frequently deserving employees are overlooked. This possibility is obviated by periodically reviewing the status of all employees as subsequently discussed.

Another objection on the part of labor to merit ratings is the feeling that the foreman's favorites are given high ratings which in turn means pay increases, while many actually meriting such increases are discriminated against by being given low ratings thus precluding them from an increase at that time. None of these problems is new and most of them have been solved by capable managements. Thirty years ago the Western Electric Company<sup>1</sup> "required of the department head that he give good reasons, not only for such increases as are recommended, but also for not recommending increases in those cases where the rate has remained stationary for any length of time."

More recently A. L. Kress has recommended,<sup>2</sup> "While

<sup>1</sup> J. W. BANCHER, Records and Reports of Work, *Annals of the American Academy of Political and Social Science*, vol. 65, No. 154, p. 266, May, 1916.

<sup>2</sup> A. L. KRESS, "Gearing Wage-payment Policies to a Wartime Economy,"

increases should be given only on the basis of a foreman's approval, no foreman should be permitted to hold up an individual's increase beyond the second period and continue to retain the man on the job."

Frequently, as the result of collective bargaining, other arrangements have been evolved. One firm having 11 labor grades has agreed to grant automatic progression from the minimum to the maximum of the ranges in the six lowest paid labor grades, while merit and ability are the determining factors in the five highest grades. Other firms provide for automatic progression up to the mid-point of the rate range and progression on the basis of merit and ability from the mid-point to the maximum of the range. In almost every case, however, arrangements such as outlined above are compromises following initial union demands for strict automatic progression on the basis of length of service only.

**Amount of Increases.**—Irrespective of whether increases are based on automatic progression, merit solely, or some possible compromise approach, the problem of determining policy relative to the amount and frequency of such increases remains.

There are several ways in which the amount of merit increase within the rate range may be expressed. The simplest method is merely to state that it is the policy of the concern to grant standard increases of a given per cent of the employee's current base rate.<sup>1</sup> The actual percentage that is decided upon is a highly individual problem and will necessarily vary from firm to firm and possibly from time to time within the same firm, depending upon economic conditions, collective bargaining and such other

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p. 21, Personnel Series No. 58, American Management Association, New York, 1942.

<sup>1</sup> The idea of using a percentage of base rate should be emphasized, since the use of any single absolute monetary increment would obviously result in a higher *percentage* of increase for lower paid jobs and a lower percentage of increase for higher paid jobs. This type of inequity is extremely hard to explain to the employees or their representatives.

factors as may at the time be of significance. Although there seem to be no conclusive statistics as to general industry practice, the consensus seems to be that anything much smaller than 5 per cent will probably not offer the employee sufficient incentive. Hay,<sup>1</sup> for example, states that steps of 5 per cent are common. Naturally, if the percentages are too high, the immediate incentive effect will probably be excellent but the range will then be exhausted too quickly and no further incentive possibilities will be available.

To provide concrete guides to supervision in the recommendation of rate increases it is sometimes desirable to supplement a general statement of policy with specific tables listing the increments of pay increase for each labor grade. This has a number of advantages:

1. It makes any "smoothing" of decimal parts of a cent consistent for all cases.
2. It sets up a standard series of rates that makes the work of the pay-roll department simpler.
3. It eliminates the possibility of errors in computation on the part of supervision.
4. It simplifies explanation of the rate progressions to employees, since the table is highly concrete.

One simple method of constructing such a table is to divide the rate ranges into segments (or steps). For example, if a range of 22 per cent is used (as previously discussed), it is possible to establish five steps for each rate range, as follows:

- Step 1. Minimum rate of the rate range
- Step 2. Five per cent above the minimum rate
- Step 3. Five per cent above step 2
- Step 4. Five per cent above step 3
- Step 5. Five per cent above step 4—also maximum of rate range (22 per cent above minimum)

**Frequency of Increases.**—Regardless of the means by which allowable amounts of increase are expressed or pub-

<sup>1</sup> EDWARD N. HAY, *Management News*, vol. 18, No. 3, p. 2, 1945.

licized, it is impossible for long to avoid the very closely related problem of the allowable frequency with which the increases may be made. Obviously the question of frequency is of equal importance to that of amount of increase, since it is only when the two are considered together that the actual cost of merit increases can be determined. Because the cost may be very significant to the fiscal well-being of the firm, especially where turnover is low, great care should be exercised in establishing policy with respect to merit increases. Decisions often must take into account not only the present financial status of the firm, but also its past practices and those of its competitors in the industry and area, and possibly the results of collective bargaining. In view of the necessity of considering such factors it is evident that no simple generalizations as to desirable or standard policy can be offered.

One important point, however, can and should be emphasized strongly. It is a basic prerequisite to the establishment and maintenance of an intelligent policy, with respect to both the amount and the frequency of merit increases, that the existing pay roll be analyzed to discover what has actually been done to date. At the time of the initial development of a formal policy the average amount and per cent and the average frequency of all increases granted for at least the previous year should be known, as well as the percentage of employees who received any increases during the period. Where no prior formal policy existed, it is very likely that the results will reveal a most haphazard and variable situation.<sup>1</sup>

Wartime wage-stabilization regulations had a salutary effect in many instances insofar as analysis of past practice with respect to wage increases is concerned. Presidential executive orders, implemented by general

<sup>1</sup> The results of one such analysis of a reasonably large firm have been described to the authors in which 49 per cent of the employees below the maximum of the rate range in one department had had no increases at all in a 1-year period whereas another department in the same plant showed only 2 per cent of employees who had received no increase in the same period.

orders of the National War Labor Board,<sup>1</sup> served to limit the allowable amounts and frequencies of increase to a "plan properly in existence" (as of Oct. 3, 1942), or to a plan approved thereafter or to the "5 and 10 (cent) rule" set up to cover cases where no plan had been "properly in existence" and none had as yet been offered or, if offered, approved. Many employers examined their past practices as to wage increases in order to try to discover the existence of a plan and thereby avoid the restrictions of the "5 and 10 rule."<sup>2</sup> The results undoubtedly in many cases revealed an orderly pattern and in many others it is equally certain that the only "pattern" was of chaos, revealing a truly haphazard approach.

Of course, during the war, especially in its earlier phases, industry's efforts were directed toward raising rates of pay and getting pay increases through in as large amounts and with as great a degree of frequency as possible. This was so because of the very abnormal condition of the labor market, the scarcity of help being so great that every effort was made to secure and hold employees by very liberal treatment. However, in more normal times the idea of multiple increases per year can hardly be called either characteristic of industrial practice or necessary in view of a normal labor market.

Although analysis of a company's pay roll will reveal the nature of the past practice applicable to amount and frequency of pay increases, this does not necessarily imply

<sup>1</sup> In some instances, of course, the directives of the Salary Stabilization Order of the Treasury Department have fulfilled the function of the general orders of the National War Labor Board.

<sup>2</sup> The "5 and 10 rule" limited pay increases to "within job classification rate ranges" and in addition imposed the following restrictions:

1. No more than a 10-cent increase in base rate could be granted to any individual employee in any one year, or no more than two-thirds of the difference between the minimum and maximum of the rate range, whichever was greater.

2. The total amount of pay increases granted in any one year to all employees affected by the rule could not exceed 5 cents per hour (over base rate).

that it will be the desire of management to perpetuate those practices. Accordingly, it is both desirable and necessary that the practices revealed by the analysis be examined and, possibly, modified in the light of current conditions and the prospect for the future. Once this has been done, the policies so established should be put in writing and adequately publicized. Certainly supervisors can hardly be expected to adhere to a uniform policy in recommending pay increases if they are kept in ignorance of the policy.

After the determination and inauguration of the desired policy it is important that some sort of control mechanism be set up for the recurrent evaluation of the status of the policy. For example, an annual or semiannual audit of pay increases may be used to indicate the degree to which the actual amounts and frequencies coincide with those established by policy. The results of such audits may be analyzed and summarized variously, by department, by job, by labor grade, and the like, depending upon the needs of the time and place. The importance of a control mechanism, regardless of the specific form it takes, is that it reveals (or should reveal) those conditions that require corrective action in order to bring them within the range of the policy. There is no doubt that some type of systematic follow-up is the only adequate means by which to accomplish the desired uniformity of results.

*Part Two*  
**Merit Rating**





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## CHAPTER XII

### INTRODUCTION TO MERIT RATING

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The purpose of merit rating is to facilitate the orderly determination of an employee's worth to the organization of which he is a part.<sup>1</sup> A fair determination of the worth of an individual to the organization, however, can take place only as the result of the appraisal of numerous factors, some of which, like attendance, are highly objective while others, like attitude, are highly subjective. Although the objective factors can be assessed accurately on the basis of records maintained by the company concerned, there are unfortunately no precise measuring devices in existence for the subjective factors. Nevertheless, appraisal of these factors must take place if a full appreciation of the employee's worth is to be achieved.

It is to meet the need for some kind of measuring instrument for semi-objective or utterly subjective characteristics that rating scales have been devised. The chief advantage of such scales is found in the fact that they regulate to some extent the movement of a person's thoughts when appraising another man, help to focus consciousness upon specific items for consideration, reduce irrelevant material to a minimum, provide comparable estimates which can be treated statistically, and furnish convenient permanent records.<sup>2</sup>

Some industrial managers, striving for simplicity of operation, have asked: Should we rate our employees? The answer, of course, is that we must and do rate our employees. This thought was capably expressed 20 years ago by a

<sup>1</sup> Merit rating is also variously referred to as service rating, employee rating, personnel review, efficiency rating, progress report, and employee appraisal. All of these terms are generally synonymous.

<sup>2</sup> BRUCE V. MOORE and GEORGE W. HARTMANN, "Readings in Industrial Psychology," p. 127, D. Appleton-Century Company, Inc., New York, 1931.

practical industrial-relations executive as follows: " . . . there can be no good purpose served by discussing whether or not ratings are necessary or desirable. They are and always have been an integral part of organization work and we cannot escape them in some form or other."<sup>1</sup> The following statement, made more recently, is equally pertinent:

An employer does rate his employees, to all intents and purposes, every time he promotes one man instead of another, gives one man a pay increase instead of another, or in any way changes the relative status of various individuals. He expresses by those actions his over-all judgment of the relative standing of the various individuals who have received different treatment. The only question which needs to be answered is whether employers shall rate employees on a haphazard basis, without recording judgments . . . , or whether they shall rate employees systematically, regularly, objectively, and as accurately as possible.<sup>2</sup>

### Uses of Merit Rating

In a text devoted to the treatment of wage and salary determination and administration, it is logical that major emphasis should fall upon the use of periodic ratings of employees by their supervisors as a means of determining whether or not an employee should receive a merit increase. In such cases the ratings assure that each employee receives due consideration and they tend to reduce the advantage that the aggressive individual often holds over the equally deserving but quiet and submissive person when consideration is being given to the granting of wage or salary increases. The fact that this particular emphasis has been high-lighted should not, however, be permitted

<sup>1</sup> HARVEY GEORGE ELLERD, "Rating Supervisors," p. 3, Production Executives Series No. 42, American Management Association, New York, 1926.

<sup>2</sup> H. C. TAYLOR, Problems of Selecting and Evaluating Employees, *Engineering Bulletin*, Extension Series No. 43, vol. 23, No. 3, p. 87, Purdue University, Lafayette, Ind., 1938.

completely to overshadow the existence of a number of other ways in which the results of merit rating may be of value. The four most important of these are in connection with (1) guidance and correction of individual employees, (2) promoting employees, (3) making some types of transfer, (4) making layoffs.

**Guidance and Correction of Employees.**—All too often employees are definitely justified in complaining that their supervisors fail to let them know how they are getting along or what they can or should do to improve their performance. The use of merit ratings provides an excellent device which the supervisor may use in approaching employees for the purpose of constructively guiding them in the direction of better work. The ratings are also a reminder to the supervisor of the need for such action.

**Promoting Employees.**—A review of past merit ratings will, in conjunction with other background data, enable supervision more intelligently to select persons for promotion. It should be emphasized, however, that objective information such as the employee's prior work experience, age, physical condition, attendance record, and education, should be given serious consideration as well as the more subjective judgments made by supervision in the form of the merit rating.

**Making Some Types of Transfer.**—Some transfers result from the employee's request or arise from specific operating problems of management that can be solved only by transferring a given individual to another job, such as the case of the only grinder in a department who is temporarily or permanently needed in another department or on another or allied type of job. Merit ratings are of little assistance to supervision in this type of situation.

However, other transfers are efforts on the part of supervision to fit the square pegs into square holes. In these cases a review of the employee's background records and merit ratings will assist management in placing the individual on the job where he is most apt to succeed. Situa-

tions of this nature are closely related to the guidance function of merit rating that has been discussed previously.

**Making Layoffs.**—In some organizations layoffs caused by lack of work are made strictly according to seniority, the employee with the least seniority in the plant, department, or occupational group being laid off first. However, in many nonunionized plants, and in some unionized plants as well, the seniority and ability of employees are both considered at time of layoff. The following clause, taken from a union agreement, illustrates this viewpoint:

It is understood and agreed that employees shall be laid off and rehired in accordance with their seniority rating and their skill and ability, but whenever, between two or more men, skill and ability are fairly equal, seniority shall be the controlling factor.

Obviously, if ability is to be considered at time of layoff some means of measuring this item should be provided. This is essential if countless grievances are to be avoided. To date, merit-rating plans, although far from perfect, are the most practical means that have been devised for coping with this type of situation.

### **Benefits to Be Derived from a Merit-rating Plan**

The benefits to be derived from the operation of a merit-rating plan will depend upon the nature of the plan, the way in which the plan is sold to supervisors and employees, and the way in which the ratings are used. An equitable merit-rating plan, fairly administered, can be of considerable value to both management and employees.

Management should benefit primarily in four ways:

1. The operation of such a plan should cause supervisors to think analytically and constructively about their employees.
2. A greater degree of consistency in the handling and treatment of employees should result.
3. Knowing that his activities are subject to periodic

review, the average employee should be motivated to greater effort.

4. The judgments of supervisors, on which many personnel transactions are at least in part based, are put in writing and thus are subject to review by higher management. They are also available in permanent form to protect the company against subsequent charges of discrimination which might be filed.

Employees should benefit through management's fair use of an equitable merit-rating plan since in this fashion all employees are assured of a periodic and just review of their status. Such review should result in the subsequent promotion of outstanding employees and in providing pay increases to deserving and eligible employees.

### Extent of Usage of Merit-rating Plans

Merit-rating plans are widely used in industry, commercial enterprises, and offices. In some cases merit rating is provided for in union agreements<sup>1</sup> and, in the case of some government bureaus and state agencies, ratings are compulsory and are established by law.<sup>2</sup>

The use of rating plans has steadily increased over the years. A survey conducted in 1930 indicated that 41 per cent of the companies replying were using merit-rating plans. A similar survey conducted in 1940 and including 231 of the same companies indicated that 52 per cent of the concerns were at that time using merit-rating plans.<sup>3</sup>

<sup>1</sup> Strictly Personnel, *Personnel*, vol. 19, No. 6, p. 702, May, 1943.

<sup>2</sup> Section 9 of the Classification Act of 1923 (42 Stat. 1488, March 4, 1933) is the basic legislation covering employee-rating procedures in the federal government. This act reads in part as follows: "The . . . board shall review and may revise uniform systems of efficiency rating established or to be established for the various grades or classes thereof . . . ."

"The head of each department shall rate in accordance with such systems the efficiency of each employee under his control or direction. The current ratings for each grade or class thereof shall be open to inspection by the representatives of the board and by the employees of the department under conditions to be determined by the board . . . ."

<sup>3</sup> Scott, W. D., R. C. Clothier, S. B. Mathewson, and W. R. Spiegel,

Another survey to determine the extent of the usage of merit rating for office workers indicated that 17 concerns (57 per cent) out of 30 replying were using such plans.<sup>1</sup>

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"Personnel Management," pp 519, 534, McGraw-Hill Book Company, Inc , New York, 1941

<sup>1</sup> *The Management Review*, vol 33, No 11, p 389, November, 1944.

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## CHAPTER XIII

### TYPES OF MERIT-RATING PLAN

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The function of a merit-rating plan is to provide systematic guidance to supervisors for the making of periodic judgments concerning the worth of their employees to the organization. To facilitate this process, most concerns that use merit-rating plans have developed forms on which the supervisor can record his judgment of an individual. In most instances, too, procedures have been established dealing with the handling and processing of the forms.

Although there are only a few basic types of merit-rating plan, nevertheless the possibilities of combining these types are great and in practice a wide variety of such combinations will be encountered. This is not indicative of capriciousness on the part of industry but is rather the result of a widespread recognition of the importance of carefully adapting any proposed rating plan to the specific needs of the organization concerned. There is no assurance in any case that the plan successfully used by one concern will necessarily be the most desirable one for any other concern. This point of view has been cogently expressed by the National Industrial Conference Board as follows: "It may be said categorically that there is no such thing as the 'one best type of rating form.' Those that have been most successful have been tailor-made to suit the particular conditions, jobs, and objectives of the organization in which they were to be used."<sup>1</sup>

The first formal rating plan to be used in industrial practice appears to be that of the Scottish cotton millowner, Robert Owen (1771-1858), who developed a set of "charac-

<sup>1</sup> "Employee Rating," p. 5, Studies in Personnel Policy No. 39, National Industrial Conference Board, Inc., New York, 1942.



ter books" for the rating of his workers. "Each employee had such a book in which his daily reports were recorded, and each also was provided with a character 'block,' each side of which was colored differently and represented an evaluation of the employee ranging from bad to excellent. The blocks were displayed on the worker's bench."<sup>1</sup> Owen apparently was well ahead of his time, for no general or widespread interest in the use of formal merit-rating plans appears to have developed until many years later.

During the past 30 years many specific merit-rating plans have been designed and applied. Although they have shown wide variations in format and mode of application, they can be classified generally into four broad types: (1) ranking, (2) man-to-man comparisons, (3) check lists, (4) scales.

### Ranking

The most elementary form of ranking is that in which employees are ranked on an over-all basis. When this approach is used, all employees under a given supervisor are arranged in rank order by the supervisor from best (*i.e.*, most satisfactory as an employee) to worst (*i.e.*, least satisfactory as an employee). In some organizations using this method, employees are ranked by traits instead of on an over-all basis, thus giving several sets of results showing each employee's standing with respect to each trait, such as initiative or cooperativeness.

One variation of straight order-of-merit rating is to designate grades, each of which denotes a specified level of merit. Usually from three to seven such grades are established.<sup>2</sup> It is then the supervisor's responsibility to place each employee in the appropriate grade. This will be recognized as the familiar practice of most schools and colleges. Once employees have been graded in this manner,

<sup>1</sup> DALE YODER, "Personnel Management and Industrial Relations," p. 340, Prentice-Hall, Inc., New York, 1942.

<sup>2</sup> "Employee Rating," *op. cit.*, p. 6.

they may be ranked in order of merit within each grade if further refinement is desired.

Another variation is to classify the jobs in an organization in terms of various levels of skill or responsibility and to rank the employees falling into each classification in order of merit. One well-known company<sup>1</sup> has used this technique under carefully controlled conditions. The positions in the company are grouped into seven classifications: policy-making, administrative, executive, creative, interpretative, skilled, and unskilled. A list of questions has been prepared for each of the seven categories. These questions are designed to enable the rater to think of each employee being rated in terms "of his usefulness; of his reactions; of his performance; the results he achieves; the confidence he engenders; the place he fills." Using the appropriate list of questions, the rater considers each employee under his supervision in each of the seven categories of position. After such consideration, the rater ranks all employees in each of the seven categories from highest to lowest, thus ending up with seven separate order-of-merit rankings.

Although the various ranking devices for determining the relative merit of employees have all been successfully used in industrial practice, they suffer from certain limitations that must be carefully considered in actual application. The most serious of these limitations are

1. It is difficult to justify the rank order assigned to any given employee when questions are raised as to the fairness of the ranking. This is so because the comparisons that are made are necessarily of one person against all the others being ranked rather than against a set of standards or established definitions. Naturally the absence of definite criteria greatly increases the difficulty of justifying the results of the ranking to the employee concerned or to a union steward.

<sup>1</sup> Westinghouse Electric Corporation. See "Performance Rating of Employees," *Industrial Relations Manual*, Part 7, Sec. I, July 1, 1937.

2. Although ranking is relatively easy for the supervisor when he has only a small number of persons to deal with, it becomes very difficult when large numbers of employees are involved. The supervisor soon finds that he is in a state of confusion and puzzlement, since he cannot make the extremely fine discriminations required to arrange all members of a large group in rank order. Working with only the most general of criteria, he cannot be blamed for feeling uncertain of the correctness of many of his decisions.

3. Closely related to the second limitation just mentioned is the problem of giving due weight to the extreme cases in the rank-order sequence. Whereas the vast majority of those in the middle of the sequence are probably separated only by very small differences, those at the extremes, both high and low, are likely to be much more widely separated. There is no way of reflecting this fact in a ranking plan because the nature of the plan is such that each person is assumed to be separated from the next by the same interval.

### Man-to-man Comparisons

The man-to-man comparison scale was originally developed in 1917<sup>1</sup> at the Carnegie Institute of Technology<sup>2</sup> for the selection of salesmen and was later adopted and extensively used in rating officers and officer candidates in the United States Army during World War I. As a result of this, the technique is often referred to as the "Army rating scale."

The plan utilized five basic factors or characteristics: (1) physical qualities, (2) intelligence, (3) leadership, (4) personal qualities, (5) general value to the service. A short paragraph was written describing each factor and numerical values were set for each of the five degrees of each factor. For example, for the factor of intelligence, the numerical values were as follows:

<sup>1</sup> SCOTT, CLOTHIER, MATHEWSON, and SPIEGEL, *op. cit.*, p. 251.

<sup>2</sup> MORRIS S. VITELLES, "Industrial Psychology," p. 206, W. W. Norton & Company, Inc., New York, 1932.

Degree	Value
Highest.....	15
High .....	12
Middle.....	9
Low .....	6
Lowest.....	3

See the accompanying table for a portion of the Army's instructions for the use of the full scale, as well as the scale itself.

In using the scale the rater was required to select an individual (officer) who exemplified each of the degrees of each factor. Thus, the officer selected to exemplify highest under the heading of intelligence should be the most intelligent officer well known to the rater and the person exemplifying lowest, conversely, should be the least intelligent. Each person rated was then matched against the human measuring scale and was assigned the numerical value of the individual on the scale whom he most closely resembled in the trait under consideration. All the numerical values were added up at the end of the rating to give the rater's composite score. This score then provided a concrete basis on which all persons rated could be compared.

#### ARMY RATING SCALE AND PORTION OF ACCOMPANYING INSTRUCTIONS\*

##### Points for Special Attention

10. Rate your subordinate for physical qualities first. Consider how he impresses his men by his physique, bearing, neatness, voice, energy, and endurance. Compare him with each of the five officers in section I of your rating scale, and give him the number of points following the name of the officer he most nearly equals. If he falls between two officers in the scale, give him a number accordingly (e.g., if between low and middle, give him 7,  $7\frac{1}{2}$ , or 8).

11. Rate the subordinate in a

##### I. Physical Qualities:

Physique, bearing, neatness, voice, energy, and endurance. (Consider how he impresses his men in the above respects.)

Highest.....	15
High.....	12
Middle.....	9
Low .....	6
Lowest.....	3

##### II. Intelligence:

Accuracy, ease in learning, ability to grasp quickly the point of view of commanding officer, to issue clear and intelligent orders, to estimate a new situation, and to arrive at a sensible decision in a crisis.

\* "Personnel Manual," Committee on Classification of Personnel, Adjutant General's Department, 1919.

## ARMY RATING SCALE AND PORTION OF ACCOMPANYING INSTRUCTIONS\*

(Continued)

corresponding manner for each of the other four essential qualifications.

12. In rating, make a man-to-man comparison of the subordinate with the officers whose names appear on your scale. Disregard the numerical equivalent until you have made these concrete comparisons.

13. When rating several subordinates, rate all of them on each qualification before adding the total for any one.

14. This is not a percentage system and you should not allow yourself to fix in mind any particular number of points you think the subordinate ought to get.

15. The total rating for a subordinate is the sum of the ratings you give him in the five separate qualities. If these directions are followed carefully the average of any considerable group of officers rated will not be over 60 points.

16. Each officer below the rank of Brigadier General will be rated by his immediate superior. Ratings will be revised or approved by the immediate superior of the officer making the rating. Each revising officer will be held responsible for the ratings made by his subordinates.

\*"Personnel Manual," Committee on Classification of Personnel, Adjutant General's Department, 1919.

Highest...	15
High...	12
Middle.....	9
Low.....	6
Lowest.....	3

## III. Leadership:

Initiative, force, self-reliance, decisiveness, tact, ability to inspire men and to command their obedience, loyalty, and cooperation.

Highest.....	15
High.....	12
Middle.....	9
Low.....	6
Lowest.....	3

## IV. Personal Qualities:

Industry, dependability, loyalty, readiness to shoulder responsibility for his own acts, freedom from conceit and selfishness, readiness, and ability to cooperate.

Highest.....	15
High.....	12
Middle.....	9
Low.....	6
Lowest.....	3

## V. General Value to the Service:

His professional knowledge, skill, and experience; success as an administrator and instructor; ability to get results.

Highest.....	40
High.....	32
Middle...	24
Low..	16
Lowest.....	8

There is no doubt that the man-to-man comparison scale was a step forward as compared with the majority of ranking plans. However, a number of rather serious difficulties are apparent in the technique which have accounted for its virtual disappearance from industrial practice. The more serious of these difficulties are:

1. The mechanics of man-to-man comparison are very

time-consuming and cumbersome. The task of selecting a group of men as measuring sticks and lining them up against the appropriate degrees of each factor is tedious and difficult to say the least.

2. Many supervisors encounter great difficulty in selecting the men to use in the scale since the criteria are very general. The inevitable reaction is one of confusion and lack of confidence in the final scale.

3. Because of the lack of really clear-cut criteria for the selection of the men to comprise the master scale, great variation in the characteristics of those selected cannot be avoided. Thus, the man selected as highest in general value to the company by one supervisor might be the equivalent of the person selected as middle by another supervisor. Such circumstances can hardly be expected to yield accurate results or results in which the raters can have confidence. One user of the method summarizes his difficulty in this respect as follows:

Another very serious objection to the Army method was the fact that it was so difficult to get a proper comparison of acquaintance, which is necessary in completing the scale of measurement. So many objections were raised to comparing one man with another, especially where the jobs and occupations were so entirely different that it was very hard to establish just who was the highest in the various qualities and who was the lowest, and what definite relationship that would have to their respective ratings on their own jobs.<sup>1</sup>

### Check Lists

As the name implies, check lists typically are made up of a series of phrases, statements, or questions concerning important aspects of the employee's performance on the job. The process of rating consists simply of checking those phrases or statements that apply or answering the questions with a "yes" or "no." In order to avoid the

<sup>1</sup> HARVEY GEORGE ELLERD, "Rating Supervisors," p. 4, Production Executives Series No. 42, American Management Association, New York,

difficulty sometimes encountered in giving categorical affirmative or negative replies to questions some users of check lists have introduced a wider range of choice, going to as many as five possibilities.<sup>1</sup> As so often happens in discussing "pure" types, it becomes difficult to know at what point the check list, when so treated, ceases to be a check list and becomes a rather simple form of scale.

Evidently a good check list demands more than the mere selection of a few randomly conceived statements or questions. If this were not so, the technique would be much more popular than it actually is. The difficulty in this case is very largely one of scientific method. An excellent example of some of the statistical and experimental considerations involved in the proper development of a check list will be found in a report by M. W. Richardson and G. F. Kuder of a project completed for Procter and Gamble a number of years ago.<sup>2</sup> Some of the highlights of the process outlined by the authors are briefly summarized as follows:

1. More than 1,000 statements describing performance on the job were gathered from a variety of sources. These

<sup>1</sup> For example, the state of California's "Report of Performance" has 27 statements listed for consideration in rating nonsupervisory employees. For each statement there are five possible spaces that can be checked according to the following instructions:

- "1. Mark when the item is completely or entirely characteristic of the employee's work or when exceptions are rare.

2. Mark when the item is almost entirely characteristic of the employee's work but not completely so; when the statement is not entirely characteristic because of a few minor exceptions.

3. Mark when the item is characteristic of the employee's work as a whole but with a number of minor or a few important exceptions; when it describes his work to a large extent; when it is not altogether true but is more true than false.

4. Mark when the item is characteristic of the employee's work only now and then.

5. Mark when the item is in no way characteristic of the employee's work; or when it is characteristic only in rare cases."

<sup>2</sup> M. W. RICHARDSON and G. F. KUDER, Making a Rating Scale That Measures, *The Personnel Journal*, vol. 12, pp. 36-40, June, 1933, to April, 1934.

statements were carefully edited to yield finally 531 statements. Each statement was typed on a separate slip of paper.

2. Fourteen judges who were familiar with the job requirements were asked to sort the 531 slips into seven piles representing equally spaced degrees of success, ranging from failure (pile 1) to the highest degree of success (pile 7).

3. The only statements that were accepted after the sorting was completed were those on which there was close agreement by the judges. "Close agreement" usually meant that the judges put a given statement in one of two adjacent piles. For example, a statement consistently placed in either pile 3 or pile 4 would be acceptable whereas one placed in these two piles and in piles 2 and 5 as well would not be acceptable.

4. One hundred thirty-two statements were accepted after the sorting and each statement was given a numerical scale value that was the average of the placements made by the judges, based on a set of values for the piles of 10, 20, 30, 40, 50, 60, 70, respectively. The statements were fairly well distributed over the range of scale values.

PORTION OF CHECK LIST SCALE DEVELOPED BY RICHARDSON AND KUDER  
FOR THE RATING OF SALESMEN

Below are a number of statements that have actually been made about Procter and Gamble case goods salesmen. Read each statement, and put a plus (+) sign before it if it applies to this man. Put a minus (-) sign if it does not apply. Use a question mark (?) if you are not sure.

	Scale Value*
He is somewhat in a rut on some of his brand talks.....	32
He tends to keep comfortably ahead of his work schedule.	56
He is a good steady worker.....	46
He is weak on planning.....	29
He is making exceptional progress..	69

\* Scale values were not given in the final form. The rater does not know the scale values of the statements.

5. Richardson and Kuder state that, "It would be possible, perhaps, to stop at this point with fair results," and then go on to point out that it is better to check the 132 statements in actual use. Consequently two forms were



made up out of the available statements and each of 650 salesmen was rated by from 2 to 5 of his superiors. The two forms were completed a month apart. These results were then statistically reviewed in some detail, with the result that a final scale containing 51 items was developed. The table on page 181 illustrates a portion of the final scale, as presented by the authors.

6. The authors conclude:

The scale as finally developed has the merit of being easy to follow and easy to score. It is capable of annual revision without destroying the comparability of periodic scores. The consistency of individual raters is easily checked in the personnel office. It is possible, by these techniques or improvements upon them, to develop a rating scale of higher reliability than those usually used in industrial personnel work.

Such a scale must be developed to fit each specific industrial situation. The preparation is not excessively laborious if Hollerith sorting and tabulating machines are used.<sup>1</sup>

Although hard to develop, a check list that has been technically and statistically well constructed is a very sound rating device. The advantages of this device are well summarized by the National Industrial Conference Board as follows:

The "halo effect" which is one of the chief difficulties with scales of all types is minimized. Comparisons can be made with reasonable assurance between employees of different departments. Each rater's task becomes more one of reporting the applicability of certain very specific items of work behavior than of evaluating performance, as is necessary with scales. Finally, because the items on the form are necessarily tied in closely with actual job elements, the form lends itself to discussions between supervisors and employees more easily than do order-of-merit rankings or scales.<sup>2</sup>

<sup>1</sup> Note that the statistical and mathematical phases are *very* laborious and trying if such equipment is *not* used (by competent statisticians).

<sup>2</sup> "Employee Rating," *op. cit.*, p. 7.

Unfortunately, in spite of these recognized advantages, unless an organization is willing to spend the time and money for the research required to develop an adequate check list and unless a statistician with good psychological training (or vice versa) is available to develop the plan, the organization would be better advised to use some other type of merit-rating plan. In addition to this problem, another complication enters the picture in the form of difficulty in selling this type of merit rating both to supervision and to the employees or their representatives. This problem arises primarily because of the fact that it is hard to explain how the plan was derived and standardized prior to being put into use.

### **Scales**

Rating plans that fall under the classification of "scales" exist in great profusion and variety and are far more widely used in industrial practice than any other rating method. Basically all such plans consist of a list of traits or attributes, each being accompanied by a scale on which the rater is required to indicate the degree to which the employee possesses that trait or attribute and displays it in his work. The range of possibilities for the construction of the scale to be used is limited only by the ingenuity of the individual doing the constructing. As a consequence, the very great variety of different forms that has been previously mentioned has been developed.

Generally speaking, most scale forms can be classified into two broad categories: (1) continuous scales and (2) discontinuous or step scales.

### **Continuous Scales**

Continuous scales in their most elementary form are made up of nothing more than a simple line placed to the right of the factor under consideration, the instructions being to regard one end of the line as the minimum amount

EMPLOYEE APPRAISAL LaPlant-Choate Manufacturing Co., Inc.					
Name _____	Clock No. _____	Dept. _____	Shift _____	Date _____	
Job Classification _____	Period: 1-2-3-4 Week _____	Supr. _____	Rating _____		
Approved by _____					
Characteristic	Exceptional	Above average	Average	Below average	Unsatisfactory
Ability to learn: How quickly does he: a. Grasp new ideas? b. Master new work? c. Remember instruction?	Has "know how." Catches on first time. Needs no extra help	Learns quickly. Re- members well. Needs little supervi- sion	Requires supervision, but does think for himself	Needs detailed in- structions on every point	Learns slowly. Poor memory. Much su- pervision
Dependability: a. Is his attendance regular? b. Does he stick to his work?	Always on the job. Drives himself hard. Very conscientious	Never absent without cause. Hard work- er. Tries to do his best	Lays off occasionally. Takes a "five" now and then. Visits around a little	Requires watching. Is easily distracted from his work	Has no sense of re- sponsibility. Kills time
Quantity of work: Does he turn out an honest day's work? (Disregard quality)	Very fast and produc- tive	Turns out good vol- ume	Cannot criticize vol- ume	Could produce more	Very slow. Never turns out a job on time
Quality of work: Is his work accurate and neat? (Disregard vol- ume)	Rarely find errors in his work	Few errors for amount he turns out	Average number of errors in terms of amount he produces	Work often needs careful inspection	Careless and sloppy in his work
Initiative: Does he a. Take hold on his own? b. Suggest and try new ideas?	Has suggested and de- veloped several good new ideas	Always manages to keep busy at some worth-while job	Will do things if sug- gested to him	Rarely shows interest or willingness to keep busy	Never shows any de- sire to better him- self or his work

Characteristic	Exceptional	Above average	Average	Below average	Unsatisfactory
<b>Job knowledge:</b> Does he have enough background of experience or training?	Has fine background and experience. Knows how to use it	More than is needed for this job	Enough to handle this job	Needs training in fundamentals	Has no idea of what the job requires
<b>Attitude toward job:</b> a. Is he interested? b. How does he accept supervision?	Doing fine job in his greatest interest	Welcomes criticism. Appreciates help	Does what is expected and asked of him	Just another job. Lacks interest	Indifferent to help. Does not take kindly to supervision
<b>Cooperation:</b> Does he hold up his end with superiors and fellow workers?	Goes out of his way to cooperate cheerfully	Always ready to do his share willingly	Usually a good team worker	Not a good team worker	Unwilling to take part
<b>Personality:</b> Does he "wear" well? (Do not jump at conclusions)	Can't help but like him. Inspires confidence	Likeable. Makes friends easily	Gets along fairly well, makes fair impression	Inclined to be a "lone wolf." Falls to attract	Creates feeling against himself and among others
<b>Health and physical make-up:</b> How does it affect his work?	Lots of pep. No physical handicap	Has health and energy. Keeps in shape to stay on job	Able to do his job	Causes slow-down and absences	Health poor or physically unable or physically unadapted
<b>Safety habits:</b> How does he handle himself, materials, and equipment?	Never jeopardizes himself, machine, or materials	Observes all safety regulations	Works with reasonable care	Must be warned of common hazards	Careless and reckless worker
(would ) I (would not) recommend this man for assignment. Accepted by _____					Foreman _____ Personnel Director. Date _____

Fig. 11.

of the trait and the other end of the line as the maximum amount, thus:

Cooperativeness\_\_\_\_\_

The rater is then expected to place a check mark at the point on the line which in his judgment expresses the degree of the factor possessed or displayed by the employee being rated. The very obvious lack of guidance given to the rater has led to many modifications of this elementary form of which the following are a few examples:

1. Percentile (or numerical) scale:

Cooperativeness\_\_\_\_\_

100	90	80	70	60	50	40	30	20	10	0
-----	----	----	----	----	----	----	----	----	----	---

(Per cent or number)

2. Alphabetical scale:

Cooperativeness\_\_\_\_\_

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
----------	----------	----------	----------	----------

3. Descriptive scale (adjective, phrase, sentence, or paragraph):

Cooperativeness\_\_\_\_\_

Excellent	Good	Fair	Poor
-----------	------	------	------

In every instance of the use of a continuous scale it should be noted that the assumption is made that the rater is capable of making infinitely fine discriminations. For this reason he is permitted to put his check mark at any point on the scale which in his judgment is correct. In the case of the descriptive continuous scale, for example, a check mark precisely halfway between excellent and good has a meaning different from a check mark that is slightly closer to excellent than it is to good.

### Discontinuous Scales

Discontinuous or step scales have grown in popularity primarily as the result of an increasing awareness that the extremely fine discriminations that are permitted by the continuous scales are impractical because the raters who use the scale actually are incapable of making the discriminations so precisely. This same consideration has led to the selection of a small number of degrees in the case of

point job-evaluation plans (see Chap. IV). The result of recognizing the limitations of judgment in the practical working situation has led to modifications in the *form* of the scales used and a general simplification of the task of rating from the standpoint of the rater. Figure 11 gives an example of a descriptive step scale which readily illustrates the difference between this type of scale and the continuous type previously discussed.

Most merit-rating plans in use fall in the category of the discontinuous or step type of scale. This type of scale is popular as a rating device because in principle and in mechanics of use it is readily understood and easily sold both to the supervisors who must be the raters and to the employees who must be the ratees. In addition, such scales are not time-consuming and they are the most interesting for new or untrained raters.<sup>1</sup>

<sup>1</sup> See P. E. VERNON, "The Assessment of Psychological Qualities by Verbal Methods," p. 46, H.M. Stationery Office, London, 1938.

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CHAPTER XIV

SOME STATISTICAL AND  
PSYCHOLOGICAL PROBLEMS  
IN RATING

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Irrespective of the format of the rating plan that is used, certain statistical and psychological problems will be encountered which seem to be basic to all rating methods. Foremost among these problems are the questions of validity and reliability, *i.e.*, whether the rating form actually measures what it was designed to measure (validity) and whether the form measures it consistently (reliability). In addition, those concerned with setting up merit-rating plans will often be bothered by tendencies on the part of the raters to let the rating given to one trait influence that given to another (halo effect), to use the middle portion of the scale to excess (central tendency), or to rate throughout on the high side of the scale as the result of disliking the unfavorable implications attached to the assigning of low ratings to their employees (leniency tendency). Finally, the question of whether or not the distribution of ratings (when plotted graphically for groups) assumes a normal or bell shape is of considerable importance because of its implications with respect to the possibility of developing a simple method of comparing and correcting ratings.

### **Validity of Ratings**

The fact that judgmental (*i.e.*, rating) methods are used for the assessment of the effectiveness of employee performance is a tacit admission that more direct and objective methods are normally not available. This very same fact is basically the reason why it is at best difficult, and

often impossible, to produce statistical proof of the validity of rating methods. It is evident that to demonstrate that a set of ratings is valid there must be some objective criterion of effectiveness of performance against which the ratings may be compared. However, since the ratings are normally used because there are no such criteria, it is obvious that those who set out to try to prove that ratings are valid soon find themselves going about in the proverbial vicious circle.

There is only one method of determining validity that is quite direct and clear-cut. This has already been mentioned, namely, the use of some objective measure of performance as a criterion. It has already been pointed out, too, that this method normally cannot be used because the objective criterion is unavailable. However, occasionally such measures have been available, as in the case of salesmen, whose annual commission earnings have been used as criteria. In those cases the validity of the ratings is revealed to be generally good, but by no means perfect. Burt<sup>1</sup>, for example, cites one case as follows:<sup>1</sup>

With a rating scale for salesmen . . . some of the items were validated by comparison with annual earnings. Of those who were rated as having an "exceptional nose for prospects," 16 were very good salesmen—*i e.*, they earned over \$5,000; 10 were good, earning \$2,000 to \$4,000; 4 were mediocre (\$1,000 to \$2,000), and none were poor. On the other hand, for those rated at the other end of the scale as "having to wait to be directed," the numbers in these same four salary groups were respectively 0, 2, 7, and 8. With another item concerning how well the salesman studies his prospect, of those who were rated in the best 30 per cent on the scale, 91 per cent were classed in the successful group, whereas only 57 per cent of the entire group were so classed.

Burt also cites two other analyses in which correlation coefficients of .66 and .85 (multiple coefficient) were obtained between ratings and objective records.

<sup>1</sup> HAROLD E. BURTT, "Principles of Employment Psychology" (rev. ed.), p. 385, Harper & Brothers, New York, 1942.



Similar evidence is also available on the basis of research conducted by psychologists in more controlled laboratory situations.<sup>1</sup> The weight of evidence indicates that, even though ratings are strictly subjective in nature, they are not necessarily or inherently invalid because of this fact.

A second but less direct method of demonstrating the validity of ratings is to follow up groups of employees who have been rated so as to determine how accurately the ratings predicted future progress. Aside from the length of time required by the method, two further drawbacks are evident: (1) the ratings cannot be used during the follow-up period, for to do so would influence the final results and (2) there is still the problem of deciding what constitutes a criterion of success or failure at the conclusion of the follow-up.

In addition to the two methods of demonstrating validity that have been mentioned so far, Driver presents a number of others that have been used in practice:<sup>2</sup>

1. Comparison with psychological tests purporting to measure the same ability.

2. Analysis to determine the presence or absence of halo effect.

3. Comparison with work samples, a work sample being defined as "a short period of performance under controlled conditions, the result of which can be measured."

4. Analysis of distribution of results.

5. Miscellaneous methods, such as

- a. Comparison of raters' opinions with those of one person considered very well informed.

- b. Comparison of ratings with recommendations for salary changes.

- c. Comparison of the ratings of a group of individuals considered outstanding in the company with the ratings of a group of inferior individuals.

<sup>1</sup> See J. P. GUILFORD, "Psychometric Methods," pp. 280-281, McGraw-Hill Book Company, Inc., New York, 1936.

<sup>2</sup> R. S. DRIVER, The Validity and Reliability of Ratings, *Personnel*, vol. 17, No. 3. pp. 185-190. 1941.

It is evident that the methods listed in the preceding paragraph are not intended to do more than provide a rough and, in some cases, very indirect approximation of the validity of a set of ratings. The mere fact that it has been found necessary to resort to such a variety of approximating techniques serves only to emphasize the difficulty of securing sound objective criteria.

Although the question of measuring validity has been of concern to many of those interested in rating methods, these individuals have not refrained from developing and using rating plans because of the absence of a simple and clear-cut solution to the problem. Recognizing the inevitability of some type of rating and desiring to control and systematize the process, those who set up rating plans commonly are satisfied with what for want of a better term may be called "logical validity," in contrast with "statistical validity." Logical validity means, in essence, the plain reasonableness and common-sense significance of the traits that are included in the rating form and of the weightings that are assigned to them.

From this point of view, the rating plan most likely to possess a high degree of validity would be the one which most fairly represented judgments of a substantial group of conscientious and careful persons who were familiar with both the jobs and the people working on them in the concern under consideration. In other words, a plan based upon the pooled judgments of a well-qualified group would be presumed to be acceptably valid in the absence of an objective criterion that could be used as the basis of a sound statistical check on validity.

There is much merit in placing considerable emphasis on the exercise of all possible precautions in initially selecting and weighting traits. Certainly this is preferable to a less careful initial accumulation of items with the expectation that later statistical analysis will reveal which ones to eliminate. Certainly, too, it is good insurance to increase the care taken during the development of a rating plan in

proportion to the probable difficulty anticipated later in securing an objective criterion of validity.

### **Reliability of Ratings**

In order to be reliable, a rating scale must yield approximately the same results upon repetition with a given group as it did the first time the scale was used, provided that the group has not had time to change to any degree. It is not hard to visualize the importance of such consistency from an administrative as well as an industrial-relations point of view. An unreliable scale, yielding diverging results upon successive applications, could in a very short time lead both employees and supervision to a state of complete distrust of the rating plan. If this were to happen, the employees and supervisors could hardly be blamed, since it is entirely reasonable for them to expect at the very least that successive ratings shall be definitely comparable. If such comparability is not assured, then the rater can never be certain as to whether changes in ratings are due to actual changes in the employee or to the basic unreliability of the scale.

Unlike the problem of validity, the reliability of rating scales is relatively easy to determine by means of statistical techniques. Generally speaking, two principal methods are used to test reliability. Likewise there are two principal methods that are used for the purpose of increasing the reliability of scales.

The most widely used method of computing the consistency of the rating method is to compare the ratings completed at one time with those completed at the end of a stated interval.<sup>1</sup>

If there is little difference between the two ratings, it may be assumed that the same thing is being measured consistently; in other words, that the ratings are reliable. It should not be expected, however, that perfect agreement will be achieved. The ratee is likely to change, or the attitude, point of view, or method of the rater is likely to be different. If the interval

<sup>1</sup> DRIVER, *op. cit.*, p. 191.

between ratings is sufficiently short (probably not over six months), these changes usually can be expected to be of insignificant size.<sup>1</sup>

The foregoing two quotations describe in general terms the most common technique for the testing of reliability. This method, termed by statisticians the "test-retest method," is likely to be very confusing if an attempt is made to determine the degree of similarity between ratings simply by lining up the original and repeat ratings side by side. With even a small number of ratings, it quickly becomes evident to the analyst that some method of summarizing the differences between the two sets of data must be used. The technique that is almost universally used to accomplish this purpose is that of correlation.<sup>2</sup> In this connection, Yoder comments as follows:

Each rater's paired ratings for individual employees should then be correlated to discover whether or not they are consistent. If they do not provide a coefficient of correlation of at least  $r = .75$ , they cannot be regarded as reliable, and steps should be taken to revise the definitions of qualities or other features of the scale or to improve or replace ineffective raters.<sup>3</sup>

Another test of the reliability of a rating scale, known as the "split-halves" technique, is to, determine to what degree the ratings of one-half of the items (traits) on the form correlate with the ratings of the other half of the items or traits. "The total of the odd items (1, 3, 5, 7, etc.) of a scale should correlate highly with the even items (2, 4, 6, 8, etc.)."<sup>4</sup> Generally speaking, the split-halves method

<sup>1</sup> "Employee Rating," p. 25, *Studies in Personnel Policy* No. 39, National Industrial Conference Board, Inc., New York, 1942.

<sup>2</sup> Almost any standard textbook on statistics may be used for guidance with respect to correlational procedures. See A. E. WAUGH, "Elements of Statistical Method," McGraw-Hill Book Company, Inc., New York, 1943; or F. C. MILLS, "Statistical Methods Applied to Economics and Business," Henry Holt and Company, Inc., New York, 1938.

<sup>3</sup> DALE YODER, "Personnel Management and Industrial Relations," p. 369, Prentice-Hall, Inc., New York, 1942.

<sup>4</sup> J. E. WALTERS, "Personnel Relations," p. 235, The Ronald Press Company, New York, 1945.

will yield a correlation coefficient that is higher than the test-retest method because no account is taken of changes either in raters or ratees that may occur with the lapse of time. As a consequence, the split-halves method will probably not reflect the actual *working* reliability of a scale as well as the more time-consuming test-retest method.

The principal and most practical method of increasing the reliability of ratings is to improve the quality of the raters' efforts. This may be done in any or all of the following ways: (1) carefully instructing the raters in how to rate; (2) creating enthusiasm on the part of the raters for the program (selling); (3) training the raters as to the proper methods of using the results of the ratings. For an extended discussion of this topic, see Chap. XVI.

The second major method of increasing the reliability of ratings is to increase the number of raters for each employee. Rugg indicates that "averages of three or four judgments would locate a person within his proper fifth of the rating scale."<sup>1</sup> Symonds feels that Rugg "erred on the side of leniency," and that an average of eight independent ratings should be obtained "if the ratings are to be individually diagnostic."<sup>2</sup>

Unfortunately, in industrial or commercial concerns of any size, it is frequently difficult to find more than one qualified rater who knows the employee well enough to rate him satisfactorily. Certainly to seek to find eight, or even three or four raters under such circumstances, is to set a decidedly unrealistic goal. As a consequence of this eminently practical problem, it will be found valuable in most cases to concentrate on the proper training and motivating of the one or two raters available for each employee.

### Halo Effect

For many years the halo effect has been the subject of considerable attention and discussion as one of the major

<sup>1</sup> HAROLD RUGG, Is the Rating of Human Character Practicable? *Journal of Educational Psychology*, vol. 13, No. 2, p. 83, February, 1922.

<sup>2</sup> P. M. SYMONDS, "Diagnosing Personality and Conduct," p. 96, D. Apple-

pitfalls to be guarded against in the use of rating plans. In simplest terms, halo may be defined as a tendency to rate any given employee on the basis of the rater's over-all general impression. This impression or "halo" is reflected in the ratings given on each individual trait. One writer expresses the condition as follows: "There is a tendency to skew the rating of every specific trait in the direction of the total reaction of the rater to the subject. This is the well authenticated 'halo effect.'"<sup>1</sup>

As in the case of attempting to offer statistical proof of the validity of a rating scale, proving the precise amount of halo that is present in any case is very difficult. Usually evidence of the existence of halo is in the form of a high degree of uniformity of ratings on individual traits, such as assigning the most favorable (or unfavorable) rating to an employee on every trait in the scale. Sometimes attempts are made to measure this tendency by the use of correlation. One writer, for example, states, "When correlations between two dissimilar traits are as high as .90 halo effects may be suspected."<sup>2</sup>

In spite of all that has been said and written about halo, however, it is not wise to approach the examination of any set of ratings with a preconceived idea as to the influence that it may exercise over the results. One authority, after an extensive review of the research that has been conducted on the halo effect, comes to the following skeptical conclusion: "Thus it appears that the evidence for the halo effect is rather thin. Although everyone who has had any experience with ratings . . . acknowledges the importance of this phenomenon, it would be well to have objective data on its incidence and amount."<sup>3</sup> Evidently, then, each

<sup>1</sup> F. F. BRADSHAW, "The American Council on Education Rating Scale: Its Reliability, Validity, and Use," p. 24, *Archives of Psychology*, No. 119, New York, October, 1930.

<sup>2</sup> E. B. GREENE, "Measurements of Human Behavior," p. 706, *The Odyssey Press*, New York, 1941.

<sup>3</sup> D. M. JOHNSON, *A Systematic Treatment of Judgment*, *Psychological Bulletin*, American Psychological Association, Inc., Evanston, Ill., vol. 42.

new rating plan must be analyzed by statistical methods (largely correlational) to get any clear understanding of the degree to which halo may be expected to play a part.

One device that materially reduces the halo effect in the case of scales is that of having all employees rated on each separate trait instead of the usual practice of rating each person on all the traits in the scale before going on to consider the next person. Another device that is often recommended for reducing halo is that of arranging the various subdivisions of the traits used in the scale in such a way that for some traits the subdivisions representing the maximum degree of the trait will appear on the left-hand side of the form and for other traits on the right-hand side.<sup>1</sup> It is contended that the rater is thus required to read the items more carefully and to rate more objectively. Although it is possible that this desirable result may hold true for the first few times the form is used, it is unfortunate that thereafter the raters tend to become so familiar with the layout of the form that the effectiveness of the technique is likely to be lost. In addition, all such devices definitely tend to make it more difficult to sell the rating plan to the raters.

### Central Tendency

As the name implies, "central tendency" refers to the inclination of some raters to characterize their employees as "average" to an unreasonably large degree. Sometimes this is due to a poorly designed form, sometimes to insufficient information either about the employee or about the proper method of using the form, and sometimes, unfortunately, to sheer laziness on the part of the rater.

Unlike the halo effect, central tendency in rating is not hard to identify. The more glaring cases can be discerned merely by a visual inspection of the ratings and those instances that are not so marked can be identified by comparing the individual rater's performance with the grand total of all the raters. This can be done by calculating

numerical averages (where scores are used), by tabulating the ratings in the form of frequency tables, by graphic presentation, or by a combination of these methods. Although investigation may reveal good reason for any rater's marked deviation from the over-all plant averages, each case of deviation should be investigated to make certain that the reasons actually are good.

Central tendency can be controlled partly by using a scale in which the definitions of the subdivisions of each trait adequately cover the whole range over which the trait may vary.<sup>1</sup> It is also felt that the use of an even rather than an odd number of subdivisions for each trait will help to reduce the effects of central tendency since there is then no actual mid-point conveniently at hand which the rater may automatically select. In addition, it is often recommended that the intermediate descriptive phrases be made nearer in meaning to the middle than to the extremes of the scale.<sup>2</sup> This device is obviously intended to force the rater to pause and think about the rating—that is, to make the discrimination close enough so that some doubt will be introduced in the rater's mind as to which of the definitions around the mid-point best fits the employee in question. Of course, as in the case of almost all types of error on the part of raters, a further control over the error of central tendency will be found in careful training or retraining of raters.<sup>3</sup>

### Leniency

The error of unjustified leniency in rating is closely related to the central-tendency error just discussed. This is logical in that those who actually should be given below-average ratings tend to receive ratings that hover around the average or at least closer to it than they should. In this connection, Yoder observes that

<sup>1</sup> See P. E. VERNON, "The Assessment of Psychological Qualities by Verbal Methods," *Report 83*, H.M. Stationery Office, London, p. 46, 1938.

<sup>2</sup> GUILFORD, *op. cit.*, p. 271.

<sup>3</sup> See J. G. JENKINS, "Psychology in Business and Industry," p. 85, John



. . . many raters hesitate at the severe criticism implied in adverse ratings, especially among those whom they know and like. Even though they know an employee should be rated at the bottom of the scale on a given trait, they cannot bring themselves to pass such severe judgment. As a result there are fewer marks in the very low levels than there should be <sup>1</sup>

Of course there is no sound reason to assume that leniency errors exist only with respect to low ratings, though it is probably true that there are likely to be more such errors in this case. The same methods that are used for the detection of central-tendency errors may be used to reveal leniency errors.

### Distribution of Ratings

If a set of ratings is grouped into a number of classes, ranging from very satisfactory or superior to inferior or unsatisfactory, it becomes of considerable interest to know what percentage of the ratings should normally be expected to fall into each class or grouping. It is evident that the answer to this question is of very real and practical sig-

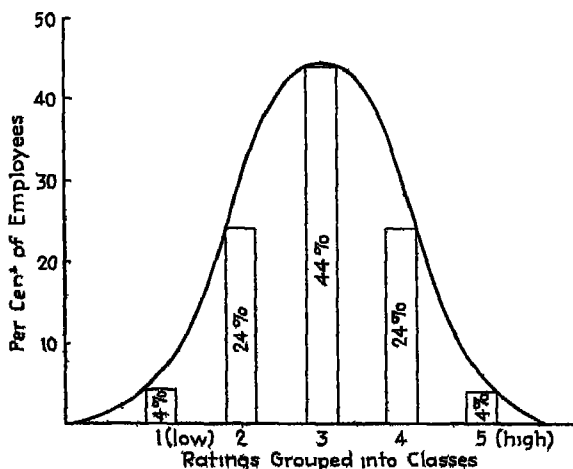


FIG. 12.—Theoretically normal distribution of ratings, showing percentages to be expected if a set of ratings, grouped into 5 classes, were distributed in the form of a normal distribution curve.

<sup>1</sup>YONGER, *op. cit.*, p. 362.

nificance in the analysis of rating results in that, if such normal percentages can be established as a guide, it thereafter becomes relatively easy to check any given set of ratings for normality against this yardstick.

Many authorities, in discussing rating methods, base their approach on the assumption that the distribution (*i.e.*, graphic plotting) of ratings takes the familiar bell shape of the normal distribution curve. Figure 12 illustrates such a curve and contains, in addition, a representation of the theoretically normal percentages to be expected if a set of ratings were grouped into five classes. Thus, if there were five classes, Fig. 12 would indicate to anyone analyzing the ratings that they should line up somewhat as follows:

	Per Cent
Superior	4
Above average	24
Average	44
Below average	24
Unsatisfactory	4

Symonds has calculated the following sets of percentages that are to be expected when from three to seven classes are used and has also indicated the differences to be expected when small (40 persons) and large (185 persons) groups are being rated.

PERCENTAGE OF CASES NORMALLY EXPECTED TO FALL WITHIN THE VARIOUS CLASSES OF RATINGS\*

Classes	Three		Four		Five		Six		Seven	
	40	185	40	185	40	185	40	185	40	185
1	20	16	11	7	7	4	5	2	4	2
2	60	68	39	43	24	24	15	14	10	8
3	20	16	39	43	38	44	30	34	22	23
4	.	.	11	7	24	24	30	34	28	34
5	.	..	.	.	7	4	15	14	22	23
6	..	.	.	..	.	.	5	2	10	8
7	.	.	..	.	.	.	.	.	4	2

\* J. R. GUNFORD, "Psychometric Methods," p. 268, McGraw-Hill Book Company, Inc., New York, 1936

It should be kept in mind that the percentages listed above are based on the *assumption* that ratings actually do tend to be distributed symmetrically about the average in the form of the bell-shaped curve. This assumption is made and supported by many students of rating techniques. Yoder, for example, states.

In general, the distribution of ratings on individual characteristics has been assumed to be fairly normal, and unless weights that are later applied result in skewness the total of such ratings will also take the normal shape. For that reason, raters may be assisted in evaluating their own work, if the number of ratees is sufficient, by reference to the expected distribution of ratings.<sup>1</sup>

Others have recommended: "Raters should be carefully trained by discussing the distribution of abilities . . ."<sup>2</sup> or " . . . information will have to be given them about the statistics of distribution of abilities and the quantitative relationship of differences in abilities."<sup>3</sup> "Formerly, in the Federal Civil Service, when the rating program was administered by the Bureau of Efficiency, the circular of instructions recommended that a specified average of 82.5 per cent be maintained and that marks be prorated 'up or down as may be necessary to reach the 82.5 per cent average.'"<sup>4</sup>

Although it is true that many human capacities, abilities, and other characteristics (*e.g.*, intelligence, dexterity, height, weight, etc.) do tend to take the shape of a normal distribution curve when a large enough *random* sample is plotted, still there is no guarantee that this will occur when the sample involved is *not* random. Actually, in the case of ratings, the sample is not necessarily a random one and, as a consequence, it is frequently found in practice that

<sup>1</sup> YODER, *op. cit.*, p. 368

<sup>2</sup> GUILFORD, *op. cit.*, p. 277.

<sup>3</sup> W. V. BINGHAM and MAX FARRER, "Procedures in Employment Psychology," p. 139, McGraw-Hill Book Company, Inc., New York, 1926

<sup>4</sup> H. L. FLEM, *Efficiency Ratings*, *Personnel Journal*, vol. 15, No. 9, p. 331, 1937

the distribution curve of ratings is skewed in the direction of the higher ratings. There are three basic reasons for the occurrence of this phenomenon:

1. Modern employee selection practices, utilizing aptitude and achievement tests and improved interviewing techniques, result (or should result) in the hiring of a lower proportion of unsuitable persons. Those unsuitable employees who are hired in spite of care in selection tend to be weeded out in the normal course of turnover. As a consequence, the working force must be regarded, on the whole, as a more or less select group of individuals the majority of whom remain on the pay roll because they demonstrate average or above-average job performance. It is not surprising, then, that a skewed distribution is often encountered under such circumstances.

2. As the result of concerted effort on the part of many managements toward more effectively motivating the efforts of employees the great bulk of any given group of workers may demonstrate superior performance. One example of the application of such motivation might well be group wage incentive, in which case the productivity of each member of the group tends to reach something approaching a common denominator (which is, however, higher than that reached by the average day worker).<sup>1</sup> Another example might be the motivation and cooperative interest resulting from superior supervision which, by constantly instructing, helping, and working with the inferior employees, eventually raises their value to the company to a much higher level. This, too, makes the group more select and less similar to a random population.

3. Probably the most significant reason of all for the tendency of curves of employee ratings to be skewed toward

<sup>1</sup> Inasmuch as factors other than productivity enter into the determination of merit it is, of course, quite possible that the weight of these other factors will tend to spread the distribution and minimize the effect of a restricted range of productivity at the high end of the scale. Although this probably does happen in many instances, it normally does not *completely* correct the tendency to skewness but merely reduces it to a certain extent.

the high side of the scale comes from the fact that so many jobs in modern factories and offices have been subdivided and standardized by time-study men, and methods, tool, and process engineers, that often only a small part of the latent ability of the employee is required in the performance of his job. Consequently, even the least able of the persons working on the job are likely to be quite able to produce

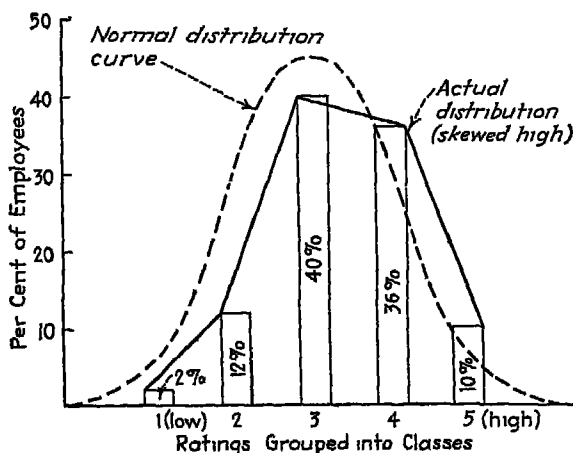


FIG. 13.—Skewed distribution of ratings, with a normal distribution curve drawn in to indicate the relative degree of deviation from the theoretical normal

the required amount of work at an acceptable quality level. This, of course, definitely restricts the possible spread of the distribution of ratings in the downward direction because quantity and quality of work almost universally play a decided role in ratings.

Primarily for the three reasons stated above it is impossible to generalize that the plotted distribution of any given set of ratings *must* or *should* take any specific shape. Although it would greatly simplify the job of reviewing ratings if all were distributed in the form of a normal curve, this cannot be taken for granted. The best approach to this problem is probably to plot the results of the ratings made by a considerable number of supervisors in one large  
 so as to gain some idea of the form taken by the

over-all distribution of ratings. When this has been done, the curve and the various percentages may resemble the normal sufficiently to justify going ahead on the assumption that the normal distribution curve fits the situation. On the other hand, the curve may (and actually is more likely to) resemble the one shown in Fig. 13, with a definite upward skew. If such is the case, one possible solution is to use the actual percentages that were found in each of the classes into which the ratings were grouped. These percentages can be regarded as normal for those particular conditions and circumstances. If this is done, over-all percentages should be calculated periodically so that if any changes occur with the passage of time they may be identified at the earliest possible moment.

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## CHAPTER XV

# DEVELOPING THE MERIT-RATING PLAN

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### The Importance of Selling

It is easy to become engrossed in the mechanical details of the design of a merit-rating form to the point that other and equally important considerations are overlooked. Important though the form may seem, it is certainly no more significant a factor in the success of a merit-rating plan than is the use to which the rating results are put<sup>1</sup> and, in particular, the extent to which top management, supervisors, and employees support the program. This latter point is very pertinently expressed in an analysis of merit-rating plans by the American Iron and Steel Institute:<sup>2</sup>

A merit-rating plan cannot be highly successful in operation unless it is thoroughly understood and accepted by the management, the supervisory force, and the employees. Complete understanding and approval is best secured through the cooperation of all concerned in the formulation and administration of the plan.

The task of securing the necessary cooperation should start with top management, which must strongly support the endeavor. Although it is recognized that this is true of any function that is to succeed in industrial practice, it is of particular importance in the case of merit rating because of the virtually unlimited dissension that may result from an unsuccessful installation.

<sup>1</sup> See HERBERT MOORE, "Psychology for Business and Industry," p. 196, McGraw-Hill Book Company, Inc., New York, 1942.

<sup>2</sup> "Merit Rating of Employees," p. 2, American Iron and Steel Institute, 350 Fifth Ave., New York, June 10, 1938.

As can easily be seen, failure of the top executives in any firm to render wholehearted support to a merit-rating plan in itself is not the core of the problem; it is the effect of such attitudes on the reactions of the supervisors who will actually do the rating that is vitally important. Almost invariably the degree of enthusiasm for any project on the part of the line supervisor is proportional to the backing given to the project by his superiors. As the result of an extensive survey of merit rating the National Industrial Conference Board cogently expresses this thought as follows:

Probably no rating system can succeed unless those who are intended actually to perform the rating operations are aware that the top management is vitally interested in the success of the program. If this is not the case, the interest and effort necessary for its success will be so lacking that the inertia of the group will be sufficient to vitiate the results.<sup>1</sup>

Once the assurance has been secured that the major executives are strongly behind the program, the personal interest and backing of the supervisors can be enlisted most readily by developing the rating form and attendant procedures with them. Many companies have done this by means of a series of conferences, with appropriate members of top management sitting in.

The biggest task is likely to be to convince the first and second line supervisors that the program is practical. At first they are apt to be wary of "more paperwork," and to be reluctant to commit themselves regarding workers' abilities. Their resistance usually disappears, however, when they realize that the procedure will help them to help their employees to do a better job. Aside from the personal satisfaction gained, their own jobs will be made infinitely easier if their subordinates are constantly trying to improve. Once these points have been put across to the supervisors, experience has shown that they enter into the undertaking with interest. Because they participate in making up the

<sup>1</sup> "Employee Rating," p. 60, *Studies in Personnel Policy* No. 39, National Industrial Conference Board, Inc., New York, 1942.



progress reporting procedure, they feel it is their own. They understand it better and use it more intelligently than they ever would a ready-made procedure handed down from above.<sup>1</sup>

However, it should be emphasized that, in any such process of collective determination of a merit-rating plan, care should be exercised by those responsible for its formulation to ensure both that the individual enthusiasms of the various participants are held within reasonable limits and that the form finally adopted will be simple, practicable, and adequate. It is a certainty that, unless the forms and procedures evolved are simple enough for all supervisors to comprehend readily, they will never wholeheartedly cooperate in using the technique.<sup>2</sup>

In addition to the backing of top management and the supervisory staff, it is very important to the success of a merit-rating plan that the support of the employees who are to be rated shall be secured. In a unionized plant this might be accomplished by discussing and selling the plan to the employees' representatives prior to its installation. Obviously it is likely to be much easier to sell the plan at this time than after it has actually been put into operation. At this time, too, potential grievances relating to the plan or the way in which it is to be used may often be either obviated by a thorough explanation of the whole program or eliminated by some slight modifications as the result of employee comments or questions. One company, non-unionized, is reported to have discussed its proposed plan with "leaders of employee opinion." Another, the Kimberly-Clark Corporation, developed its plan cooperatively with employee representatives and incorporated the procedure in the regular labor agreement.<sup>3</sup>

In addition to being discussed with supervisors and employees or employee representatives, the plan finally

<sup>1</sup> *Op. cit.*, p. 32.

<sup>2</sup> See ADELBERT FORD, "A Scientific Approach to Labor Problems," p. 55, McGraw-Hill Book Company, Inc., New York, 1931.

<sup>3</sup> "Employee Rating," pp. 32, 80, Studies in Personnel Policy No. 39, National Industrial Conference Board, Inc., New York, 1942.

adopted should be given widespread and sensible publicity. A policy of secrecy, aside from its inadvisability on industrial-relations grounds, is in practice impossible to maintain. Inevitably rumors concerning the plan will circulate among those who are being rated and, as is so often true of rumors, are very likely to be given widespread credence. There is only one good antidote for such dangerous poison—a thorough explanation to all concerned of the purpose of the plan and how it will work. There are many avenues by which this may be accomplished, such as the firm's house magazine or newspaper, bulletin boards, the employee manual, and pay-roll inserts.

### **Selecting the Traits or Items—Primary Considerations**

The two most fundamental considerations that affect the selection of the traits or items on which employees should be rated are (1) the objectives or purposes which the rating plan is expected to fulfill and (2) the types or groups of employees who are to be rated.

**1. Objectives of the Plan.**—Before a logical decision can be made as to what items or traits are to be included in the merit-rating form, management must definitely come to a decision as to the fundamental objectives of the plan. This decision will at once begin to lend meaning and direction to the process of selecting traits for inclusion in the rating form. As an example, are the rating results to be used when employees are being considered for promotion? If so, evidences of leadership or organizing ability may be of importance, as in the case of promotions to supervisory jobs, or some light may be desired concerning versatility or adaptability, as in the case of promotions to higher level nonsupervisory jobs. Or again, are the ratings to be considered in relation to layoffs? If so, length of service may have a legitimate place in the over-all rating, even though this item is normally not encountered as a direct part of merit-rating plans.

It is quite possible that the establishment of too large a

variety of purposes for the plan may necessitate the inclusion of so many traits that the form will become undesirably bulky and difficult for the raters to use. It is far better to design a plan for a limited number of specific purposes and to restrict its use accordingly than it is to attempt to fulfill too many functions, and, as a result, to find that the program has lost the support and confidence of supervision.

**2. The Employees Who Are to Be Rated.**—In addition to the objectives of the plan, the type of employee who is to be rated will influence the selection of the traits to be included in the rating form. It is obvious that all employees, working on all types and levels of jobs, cannot logically be rated on the same items or traits. Thus, to rate the research worker on originality might be highly desirable whereas to rate the sweeper on the same trait would be meaningless. Likewise, the executive might well be rated on ability to generate enthusiasm in others, but surely this would be a meaningless trait in the case of the turret-lathe operator.

The above basic consideration has been well expressed by Yoder as follows:

If widely different types of occupations are to be rated, it will be necessary to prepare more than one scale, for the same scale will not generally fit diverse groups. Just as different types of positions require distinctive abilities, so the rating of those who function in such positions requires different scales. Scales for supervisory and minor executive positions emphasize qualities of leadership, organizing ability, originality, initiative, tact, and other such traits, while those applied to operatives who have little or no executive responsibility tend to emphasize skill, industry, learning ability, personal appearance, ability to meet the public, willingness to cooperate, and similar features.<sup>1</sup>

In most organizations there are at least five distinct "levels" or groups of personnel that should be given sepa-

<sup>1</sup> DALE YODER, "Personnel Management and Industrial Relations," n. 354, Prentice-Hall, Inc., New York, 1942.

rate consideration for purposes of merit rating and for whom separate rating forms should be devised. These are

1. Executives
2. Supervisors
3. Engineers (and research personnel performing comparable functions)
4. Employees who meet the public
5. Employees who perform skilled, semiskilled, or unskilled shop or office work, but who do not have to meet the public, supervise, or perform creative work

In most industrial organizations the last of these categories is the largest numerically and includes those employees for whom most merit-rating plans have been designed.

### Selecting the Traits or Items—Secondary Considerations

In addition to the previously discussed very fundamental primary considerations that affect the selection of the traits or items on which employees are to be rated, there are three other considerations to which due weight must be given during the process of determining the specific content of a merit-rating form. These are (1) the extent to which so-called "objective" items should be included, (2) whether or not the items or traits are significant, and (3) the importance of avoiding overlapping of traits or items.

**Objective Items.**—There are two schools of thought on the desirability of including in a rating form objective items such as quantity of work or attendance. Bingham and Freyd object to the inclusion of such items: "Ratings should not be included on abilities or characteristics which can be objectively measured by tests or personnel records."<sup>1</sup> On the other hand, objective traits are nevertheless frequently included in rating forms either to afford some measure of the reliability of the ratings of subjective traits, or because in one department of a concern a trait may be objective while in a neighboring department of the same

<sup>1</sup> W. V. BINGHAM and M. FREYD, "Procedures in Employment Psychology," p. 142, McGraw-Hill Book Company, Inc., New York, 1926.

concern the trait might be subjective<sup>1</sup> or to afford a convenient means of accumulating on one record all the important points that should be reviewed when any of the personnel transactions requiring the use of merit rating is about to take place. If so-called "objective" items are included in the rating form, the rater should certainly refer to any records that are maintained concerning those items before making any attempt to rate employees on them.

**Significance of Traits or Items.**—When considering the significance of an item the chief question is whether or not the item is characteristic of, and important to, the work actually performed by the employee. It has already been pointed out that different items are required for different categories of jobs. The further point may now be made that these items should be identifiable in the work situation and should be important for success on the job. Unfortunately there are many examples in rating forms of the violation of the requirement that items be significant. For example, rating an employee on number of dependents does not contribute to an understanding of the employee's merit as a worker, but there are rating forms that include this item. Other equally pointless applications are readily identifiable, such as rating executives on attendance and production-line operators on imagination and cost-planning ability.

**Avoidance of Overlapping Traits or Items.**—The items or traits selected for inclusion in the form should be as distinct from one another as possible. Forms that contain overlapping traits such as cooperativeness and work attitude or quantity of work produced and application to work merely tend to make the task of the rater more difficult. In such instances the rater not only has the problem of attempting to distinguish between the traits but also is

<sup>1</sup> As an example, the trait, quantity of work, might be objective in the case of the assembly department where records of operator productivity are kept and might be subjective in the case of the storeroom where it is usually impossible to obtain quantitative production records for individual employees.

forced to spend more time on the form since the inclusion of overlapping traits adds to its length.

### Number of Items to Be Included in the Plan

Generally speaking, if fundamental, important, and mutually exclusive traits are selected, their number will be small. The basic significance of this generalization should be emphasized and "sold" to all concerned by the individual or group responsible for the installation and administration of the merit-rating program.

An analysis of 25 merit-rating plans currently used for rating rank-and-file employees reveals that the average number of traits utilized is 7.72. A frequency list of the traits used in these plans is presented in the table on page 212.

Ewart, Seashore, and Tiffin, after a detailed statistical analysis of a 12-item rating plan used by a large industrial organization, conclude that "worker competency could be rated on one, or possibly two traits, as well as it is now rated on the basis of twelve."<sup>1</sup> Several rating plans have required the raters to consider 12, 14, or even as high as 30 traits. An even more extreme instance is cited in the following quotation:

Recently there was issued by an industrial concern a list of 95 traits all said to be important in employees in industry. It was recommended that each employee should be rated as possessing or as not possessing each of these traits. It is impracticable to rate so many traits. *The five most important are probably enough.*<sup>2</sup>

In the construction of rating forms no hard-and-fast rules can be categorically set forth governing the specific number of traits to be used in any individual installation.

<sup>1</sup> EDWIN EWART, S. E. SEASHORE, and JOSEPH TIFFIN, A Factor Analysis of an Industrial Merit Rating Scale, *Journal of Applied Psychology*, vol. 25, No. 5, p. 485, October, 1941.

<sup>2</sup> SCOTT, CLOTHIER, MATHEWSON, and SPRIGGEL, "Personnel Management," p. 232, McGraw-Hill Book Company, Inc., New York, 1941. (Italics added.)

ANALYSIS OF ITEMS IN 25 MERIT-RATING PLANS CURRENTLY USED FOR  
THE RATING OF RANK-AND-FILE EMPLOYEES

Item or Trait	Frequency of Occurrence
Quality of work.....	25
Quantity of work.....	25
Cooperativeness.....	22
Dependability.....	14
Knowledge of work.....	12
Initiative.....	11
Judgment.....	8
Safety.....	6
Physical condition (health).....	6
Personality.....	6
Adaptability.....	6
Ability to learn.....	5
Application to work.....	4
Attendance.....	4
Supervisory ability.....	4
Over-all job performance.....	3
Capacity for advancement.....	3
Work attitude.....	3
Length of service with the company.....	2
Speed at learning jobs.....	2
Leadership.....	2
Attitude toward work assignments.....	2
Personal habits.....	1
Could handle better job.....	1
Attitude toward company.....	1
Ability to accept responsibility.....	1
Care of equipment.....	1
Industriousness.....	1
Interest.....	1
Conduct.....	1
Self-confidence.....	1
Imagination.....	1
Reliability.....	1
Dependents.....	1
Marital status.....	1
Citizenship.....	1
Development.....	1
Adjustment to job.....	1
Personal qualities.....	1
Cost-planning ability.....	1

In general, it will probably be found desirable to utilize more traits in rating executives than in rating supervisors and, in turn, more traits may be needed for the rating of supervisors than for the employees they supervise. This is not illogical in view of the increasing job complexity encountered as one ascends the organizational hierarchy.

Although it is easy to recommend the use of very small numbers of traits in a rating plan, it is in practice very difficult to install plans composed of two, three, or sometimes even four traits. The prime reason for this is the fact that the raters, who normally do not reason in statistical terms, are simply unconvinced that such small numbers of traits will adequately measure their subordinates. The line of reasoning favoring the use of the very short forms, though sound, is sufficiently foreign to the normal approach of the raters to their everyday problems that compromises with the pure logic of the situation will necessarily have to be made in order to render the final plan *emotionally* satisfying to the raters. It is this emotional reaction that actually cements the conviction of the raters that the plan is sound and worth while. Probably the best practical approach toward the achievement of brevity and simplicity in developing a merit-rating plan is to strive constantly to reduce the number of traits to be considered to the smallest possible number that can still be thoroughly sold to the raters and to top management.

### Weighting the Items or Traits

It is almost inevitable that some of the traits selected for incorporation into the merit-rating form will be of greater significance than others in determining the final rating of the employee. Most plans cope with this problem by assigning different weights to the items in accordance with the relative significance which they are judged to possess.

Recently there has been a growing recognition of the fact that equal weighting of each quality may lead to almost worthless



total ratings, if certain qualities are, from the standpoint of management, considerably more important than others. For this reason, many firms now weight individual characteristics differently. Thus, for instance, initiative may be given a maximum value of 20 points, while appearance has a maximum of 10.<sup>1</sup>

The widely used merit-rating plan developed by the National Metal Trades Association uses six traits and weights them as follows:<sup>2</sup>

	Per Cent
1. Quality of work.....	25
2. Quantity of work.....	20
3. Adaptability....	15
4. Job knowledge.....	20
5. Dependability.....	10
6. Attitude.....	10
Total.....	100

Another type of form provides a column for the insertion of a weight factor after each trait. For example, weight factors may be assigned on the following basis:<sup>3</sup>

	Weight Factor
Of primary importance in job.....	3
Of secondary importance in job.....	2
Of minor importance in job.....	1

A further consideration to be borne in mind by those developing rating plans is the possible desirability of using the same set of traits with different weightings for somewhat different types of work.

The final decision as to whether or not to weight the traits and, if so, what weightings to use for any type of work can be most effectively worked out in conference with those who are to do the rating. Not only is this a powerful selling device by which to help to gain acceptance

<sup>1</sup> YODER, *op. cit.*, p. 352.

<sup>2</sup> A. L. KRESS, How to Rate Jobs and Men, *Factory Management and Maintenance*, vol. 97, No. 10, p. 66, October, 1939.

<sup>3</sup> MARY HARPER WORTHAM, "Rating of Supervisors," *Bulletin* 11, p. 22, 1944, Industrial Relations Section, California Institute of Technology, Pasadena, Calif.

for the merit-rating plan but the significance of the final ratings will be greatly enhanced by utilizing the pooled judgments of a group of supervisors in determining the weighting of the traits.

### Subdivisions of Each Trait or Item

After the traits or items to be used in the plan have been selected and weighted, the decision must be made as to how many subdivisions shall be established for each. These subdivisions form the actual scale or yardstick used in rating the employees. Although it is true that if the scale has too few subdivisions it will be too coarse to differentiate readily between employees, there is equal danger in having too many subdivisions. Those who are statistically and psychologically untrained usually err in the direction of providing so many subdivisions for each trait as to make it beyond the rater's power to discriminate between one degree of the scale and the next. Furthermore, it has been found that, in order to secure consistency of interpretation by the raters, each degree or subdivision of the scale should be defined in writing. This imposes an additional restriction on the scale designer since, although any number of subdivisions of a trait can theoretically be set up, it is almost impossible to define a large number of gradations from minimum to maximum in writing. Yoder states, "In any case, more than five divisions are inadvisable, for most raters will be unable to distinguish more than that many degrees in the quality, and three divisions will frequently be adequate."<sup>1</sup> This is amply borne out by others. Watkins and Dodd conclude, "The qualities chosen should not be rated in more than four or five degrees. . . ."<sup>2</sup> Freyd states, "There should not be more than five descriptive items nor less than three."<sup>3</sup>

<sup>1</sup> YODER, *op. cit.*, p. 355.

<sup>2</sup> G. S. WATKINS and P. A. DODD, "The Management of Labor Relations," p. 314, McGraw-Hill Book Company, Inc., New York, 1938.

<sup>3</sup> MAX FREYD, The Graphic Rating Scale, *Journal of Educational Psychology*, vol. 14, No. 2, p. 100, February, 1923.

In a survey of 52 plans, Greene found that four or five subdivisions were most frequently used.<sup>1</sup> An analysis of 25 merit-rating plans by the authors indicated the following:

Number of plans utilizing three trait subdivisions.....	5
Number of plans utilizing four trait subdivisions.....	9
Number of plans utilizing five trait subdivisions.....	9
Number of plans utilizing six trait subdivisions.....	2
Total.....	25

### Scoring

The advisability of calculating numerical scores for ratings has been a much debated topic. There are several possible positions that may be taken toward this whole problem:

1. Calculate an over-all score that is the sum of the scores on the individual traits or items in the form and

- a. Use the scores as they are for comparison purposes or guidance in personnel transactions.
- b. Group the scores into a small number of categories, regarding all who fall in the same category as roughly equal.

2. Refrain from using an over-all score, but use instead the scores on each individual trait. This is done to avoid the possibility that over-all scores may conceal differences on important traits. In this case, as in (1) above, the scores may be used either as they are computed or they may be grouped into a small number of categories.

3. Refrain from scoring the form at all.

It goes without saying, of course, that there is also a "compromise" position wherein a firm may adopt some combination of the foregoing possibilities, such as trait scores for certain portions of the form and no scores for others, or over-all scores for portions of the form and trait scores for others, etc.

<sup>1</sup> EDWARD B. GREENE, "Measurements of Human Behavior," p. 704, The Odyssey Press, New York, 1941.

**Over-all Scores.**—In setting up over-all scores for rating forms it is customary to assign a numerical value to each subdivision of each trait or item used. One possibility is to increase the weighting of the trait on the basis of an arithmetic progression to determine the value of successive subdivisions. Sometimes the weightings are merely divided up on the basis of the pooled judgments of a committee of supervisors and in other instances quite elaborate statistical methods are used to provide "standard scores."<sup>1</sup>

The tendency to use the raw scores, just as they are added up, for purposes of comparing or judging employees is a dangerous one. It has already been pointed out that merit ratings cannot be made with any fine degree of discrimination and it follows, therefore, that the results of the ratings should not be regarded as any more precise than the judgments that went into producing those results. The generalization has rightly been made that, "All caution must be exercised to avoid attaching undue importance to a numerical score,"<sup>2</sup> and one of the simplest methods of avoiding this difficulty is that of grouping scores. An excellent example of this technique is seen in the rating plan of the National Metal Trades Association which uses five categories or groups into which all employees who have been rated are placed:<sup>3</sup>

Group	Score Range
1✓	91-100
2	81 and under 91
3	71 and under 81
4	61 and under 71
5	60 or below

<sup>1</sup> "Standard scores" are based upon the statistics of variability, the results of which indicate that as scores deviate further from the average, the arithmetic units in which the scores are expressed fail to indicate the actual significance of the deviation. As a consequence, the unit of standard scores is the "standard deviation" which may readily be interpreted to tell the actual amount by which any given score is above or below the average score. See J. P. GUILFORD, "Psychometric Methods," p. 86, McGraw-Hill Book Company, Inc., New York, 1936.

<sup>2</sup> WORTHAM, *op. cit.*, p. 23.

<sup>3</sup> KRESS, *op. cit.*, p. 66.

The use of the grouping technique with from three to five groups does not, of course, guarantee the accuracy of the ratings, but it does help to check the tendency to think of scores as precise units of measurement.

**Trait Scores.**—Some organizations, concerned over the possibility that over-all scores will cover up or average out differences in important traits, insist upon using only part scores or trait scores (*i.e.*, an individual score for each trait). Although this device makes it more difficult for supervision to summarize rating results, it does have the advantage that employees who are outstandingly superior (or inferior!) with respect to one or two traits will be assured due recognition.

Since the use of trait scores does not in any way affect the desirability of avoiding undue emphasis on numerical scores as such, it is just as important that some method of grouping be used as in the case of over-all scores. The use of from three to five groups for each trait score will help not only to avoid the emphasis on numerical values but also to deter enterprising supervisors from simply averaging all the trait scores and ending up with exactly what was not wanted, namely, a pseudo over-all score.

**No Scores.**—Some very interesting and stimulating experiments have been made in designing and using rating plans without assigning any scores either to the subdivisions of the traits or to the final composite rating. One such application has been made by the General Foods Corporation, about which the National Industrial Conference Board makes the following observation:

It will be noticed that no numerical values appear on the forms. None are used after the forms have been filled in, nor are the forms subjected to any sort of statistical evaluation, the management believing that it is neither desirable nor possible to reduce records of judgment on human values to exact figures. They are recognized as being approximations only. Further, it is not believed that any total numerical score would be as indicative of an individual's job behavior as is the picture revealed by the

form itself, on which each personal characteristic is a separate and distinct item.<sup>1</sup>

Although there is much to be said in favor of this point of view, it is evident that it is applicable only where the prime function of the rating is to provide a basis for discussion between the supervisor and the employee. Because the use of some scoring method vastly facilitates further analysis and action, most firms have clung to the use of scores even though it is recognized that they may be misleading if not used with care and discrimination.

### Importance of Adequate Definitions

In order to ensure consistent interpretation by raters as to the meanings of the various traits used on the form it has been found helpful to define the traits in terms of observable employee action. In addition, and for the same reason, the various subdivisions (or degrees) of each trait should be similarly defined.

Because words and phrases do not communicate the same meanings to all, there is an ever-present language problem. This problem is doubly present in rating forms: First, in the difficulty of defining exactly such abstractions as "personality," "attitude," and "cooperation"; and second, in trying to establish a verbal unit of measurement of the degree to which these traits are present.<sup>2</sup>

Defining the degrees of excellence in any trait is one of the most difficult problems in the construction of a form. The simplest distinctions are the one-word adjective or adverb graduations such as *poor-fair-excellent*, or *seldom-frequently-usually*. Such combinations do not constitute a definition of performance at various levels, nor do they encourage raters to think in specific terms of job performance.<sup>3</sup>

Generally adjective-adverb definitions are better than none, definitions by means of phrases are superior to adject-

<sup>1</sup> "Employee Rating," *op. cit.*, p. 72.

<sup>2</sup> WORTHAM, *op. cit.*, p. 29.

<sup>3</sup> *Ibid.*, p. 20.

tives or adverbs, and definitions by means of sentences or paragraphs superior to any of the foregoing.

An analysis of 25 rating plans currently in use is summarized in the accompanying table.

Method	No. of Plans
Defining traits:	
By name of trait only.....	13
By phrases.....	3
By sentences or paragraphs.....	9
Defining subdivisions of traits:	
By adjectives or adverbs.....	8
By phrases.....	13
By sentences or paragraphs.....	4

The task of assuring consistency of interpretation of the definitions of traits and subdivisions of traits is at best a difficult one. It is dangerous merely to sit down at one's desk and write up a set of definitions which are then put into use. The very least that should be done is to evolve the definitions in conjunction with the prospective raters so that some indication may be obtained of the attitudes and points of view of those who are eventually to be asked to interpret what the definitions mean. Even such a joint effort may leave much to be desired because there is no assurance that the subdivisions that have been evolved are, in terms of judgment, separated by approximately equal intervals. Because the discriminations that the usual scale permits are rather rough, this problem does not normally cause much concern, the feeling being that empirical methods will generally give a fair approximation of a small number of reasonably uniform ascending steps. To check the scale subdivisions by statistical methods involves a considerable amount of work, but, if desired, it can be done by following very much the same procedure as that outlined for the development of a check list (see pages 179 to 183).

### Supplemental Information

In addition to the traits, their subdivisions, and the associated definitions, almost all rating forms contain spaces for the following general information:

Name of the employee being rated  
Pay-roll number of the employee  
Department (unit or section) in which the employee works

The employee's occupation

The date of the rating

The name of the rater

The title of the rater

The name of the person(s) who approved (reviewed) the rating

In addition to the foregoing, other information of various sorts is often considered desirable. Some firms provide a series of questions on the back of the rating form, such as the following:

1. All in all are you satisfied with this employee and his progress? Explain.

2. Do you recommend promotion, demotion, transfer, discharge? Explain.

3. Is this employee well suited for the type of work he is now doing? If not, for what other line of work?

Such questions are designed to lead the rater to the formulation of conclusions about the employee and thus to force the rater really to think about the rating in an organized and constructive manner. For this same reason, some firms require the raters to give examples of the employee's performance or ask the rater to explain and justify his ratings on each trait. Supervisors are very prone to object to this type of procedure since the completion of the ratings under such conditions becomes very cumbersome with its burden of "writing an essay" about each employee.<sup>1</sup>

One compromise possibility is to leave a few lines headed "comments" below the space on the form assigned to each trait (see Figs. 14 and 15) and explain in the instructions accompanying the form that the rater may fill in any comments which he may care to add in order to supplement the rating, especially in the case of either extremely high or



Employee Rating Report		Date	
Name	Pay-roll Number		
Department	Classification		
Title		Approved by	
Subdivisions of traits			
Traits	A	B	C
Quality of work: Consider the quality of the work produced by the employee regardless of the quantity	Work barely gets by. Often makes mistakes and is careless	Generally maintains passable quality level	Usually does a good job. Makes but few errors
Comments:			Consistently does an excellent job—no spoilage or waste
Quantity of work: Consider the quantity of work produced by the employee regardless of the quality	Takes a long time to accomplish but little. Output low	Produces reasonably satisfactory volume of work. Sometimes needs to be pushed	Produces more than the required amount of work. Needs no prodding
Comments:			High production. Exceeds quotas regularly. Completes assignments in the shortest possible time
Cooperativeness: Consider the extent to which the employee cooperates with fellow employees and his supervisor	Does not get along with others. Indifferent. Causes friction and trouble	Fair teamworker. At times inclined to hang back	Gets along satisfactorily with associates. Meets others halfway
Comments:			Goes out of his way to cooperate with others
Dependability: Consider how reliable the employee is and the extent to which you can trust him to carry out your orders conscientiously	Requires frequent checking or follow-up. Cannot be relied upon without close supervision	Reliable in the performance of most duties. Needs follow-up where assignments are not routine	Carries out instructions conscientiously and promptly with excellent results
Comments:			

Fig. 14.—Sample merit-rating form \* (for average shop jobs).

\* This sample form is presented solely to illustrate the foregoing discussion and is not meant for use in any specific concern. The traits used are the four which appeared with the greatest frequency in an analysis of 25 currently used merit-rating plans (see table, p. 212). The subdivisions of the traits have also been taken from these plans.

SAMPLE MERIT-RATING FORM ILLUSTRATING POSSIBLE SYSTEM OF SCORING AND GROUPING FINAL SCORES				
Group	Point Range			
1. Excellent.....	341-400			
2. Good.....	281-340			
3. Average.....	221-280			
4. Poor.....	161-220			
5. Unsatisfactory.....	100-160			

Traits	Subdivisions of traits			
	A	B	C	D
Quality of Work	80	60	90	120
Comments:_____				
Quantity of Work	30	60	90	120
Comments:_____				
Cooperativeness	25	50	75	100
Comments:_____				
Dependability	15	30	45	60
Comments:_____				

FIG. 15.

extremely low ratings on the trait. This practice might well be encouraged but, before being made mandatory in every case, should be carefully considered in the light of probable supervisory reactions.

In the final analysis, the supplemental information included in any rating form will necessarily depend upon a variety of factors, such as the functions for which the plan was designed, the type of employee being rated, the general educational level of the raters, and, most important of all, what is considered necessary and desirable by top management.

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## CHAPTER XVI

# ADMINISTERING THE MERIT-RATING PLAN

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The fundamental problem in the administration of a merit-rating plan is to assure that equitable ratings are made at the desired time intervals and that these ratings are utilized in the prescribed manner. As discussed in Chap. XV, to achieve these results it is of utmost importance that the wholehearted cooperation and understanding of the raters be secured. The cooperation of the raters can best be brought about (1) by their realization that top management is actively supporting the program and (2) by developing the merit-rating plan that is finally adopted in conjunction with them. The understanding of the raters is achieved partly, of course, by their participation in the actual development of the plan and partly by means of careful and concrete training as to how to rate and how to use the results of ratings.

However, before raters can be effectively trained, it is necessary that certain questions of basic policy be answered since the decisions must be incorporated as part of the actual training. These questions, the answers to which must be determined in each case by those responsible for the administration of the program, are

1. Who shall do the actual rating and how many raters shall there be for each employee?
2. How frequently shall the ratings be made?
3. Shall the ratings be reviewed and, if so, by whom?
4. Who shall score the ratings?
5. Shall the ratings be discussed with the employees?

### Who Shall Rate and How Many Raters?

Selecting the person or persons to perform the actual function of rating is both important and difficult, particularly in the larger firms. The principal requisite is that each rater must know the employee who is being rated and must have been in sufficiently close contact with him and his work for a long enough period of time so as to be able to rate the individual fairly on each of the traits or items included in the plan. Obviously the immediate supervisor of the employee best fits this criterion, and he very definitely should rate all persons under his jurisdiction. However, where it is at all possible, it is most desirable to secure ratings on the same employee at the same time from two or three raters in order to increase the reliability of the results.

In smaller companies it should not be too much of a problem to find three qualified raters in almost every instance since members of various levels of management tend to have more opportunities and more reason to observe and contact rank-and-file employees in the small firm. In large companies, on the other hand, difficulty is quite frequently encountered in finding more than one individual who is well qualified to rate each employee. In such instances several possible courses of action are available. One possibility is to establish no standards as to the number of raters but to determine in each case how many persons are qualified to rate the employee and to use this number of raters, regardless of whether it be one or five. This approach would probably lead to wide variation in the number of raters not only between but also within departments, sections, or units of the firm. Another possibility is to have a representative of the personnel department rate the employee (in addition to the employee's supervisor), thus assuring at least two ratings in each case. This possibility cannot be seriously criticized *provided* that the personnel department representative actually knows the employee and has had sufficient opportunity to observe

him at work so as to be able to judge him fairly. A third possibility is to use a rating committee composed of several layers of supervision, the reasoning being that, although not every member of the committee will know every employee, two members at least probably will be qualified in any given case. The committee's function would then be to discuss each case and, by questioning, force those who know the employees to justify their ratings. A variation of this committee idea is that of using one or two members of supervision on a committee with one or two employees of the department being rated. Although occasionally used, many managements strongly oppose the use of joint committees because of their conviction that rating is strictly a management function.

Some light is thrown on industrial practice with respect to the question of the number of raters for each employee by a National Industrial Conference Board survey conducted prior to the war. The results indicate that the majority of the 94 firms surveyed were obtaining only one rating for each employee. The detailed results are summarized in the accompanying table.<sup>1</sup>

No. of persons rating each employee	No. of companies	Per cent
1	54	57.4
2	23	24.5
3	14	14.9
4	1	1.1
Practice not stated .....	2	2.1
Total.....	94	100.0

Regardless of how many persons rate each employee or of whether committees or other special devices are used, the key point of emphasis always seems to revert to one particular individual in the organizational structure—the immediate supervisor of the person being rated. The sig-

<sup>1</sup> "Plans for Rating Employees," p. 13, Studies in Personnel Policy No. 8, National Industrial Conference Board, Inc., New York, June, 1938.

nificance of the supervisor's role is very clearly expressed in the following statement:<sup>1</sup>

In by far the majority of rating plans, the rating form is filled in by the employee's immediate supervisor or supervisors. It seems to be essential that the immediate supervisor be one of the raters no matter how many other persons are included. One executive clearly stated the reason for this:

"If sound organizational structure is to be maintained, the employee must feel that his foreman is the man responsible for him both as to operating duties and personal problems. The personnel department enters into the picture when foreman and department head need help in doing what is necessary for their people. It is very difficult, we think, to maintain a solid working relationship between employee and foreman if the latter feels that he is responsible for only the employee's performance on the job."

### How Frequently Shall Ratings Be Made?

The dynamically changing nature of the relationship between the employee and the working situation makes it a practical necessity that ratings be kept reasonably up to date. The problem in this case is one of arriving at a sensible criterion of up-to-dateness. The authors know of no concern that rates its employees less frequently than once per year. Accordingly, this may be taken as probably the maximum time interval that should be permitted to elapse between ratings.

The determination of a reasonable *minimum* time interval demands the exercise of careful judgment in view of local conditions and circumstances. Too frequent ratings will probably fail to reflect any appreciable changes in employee performance and, as a consequence of this, the process of rating may tend to become highly mechanical, with the rater being unduly guided by the results of preceding ratings. In addition, too frequent ratings impose a very real burden on supervision in most organizations, which

<sup>1</sup> "Employee Rating," p. 16, Studies in Personnel Policy No. 89, National Industrial Conference Board, Inc., New York, 1942.

results in hurried ratings and supervisory apathy toward the whole program.

The actual practice of a substantial number of firms indicates fairly well the practical boundaries within which frequency of ratings seems to range. The vast majority of companies sampled in a fairly extensive survey rated their employees annually or semiannually. A detailed summary is given in the accompanying table.<sup>1</sup>

Frequency of rating	No. of concerns	Per cent
Once annually.....	31	33.0
Some once, some twice annually.....	13	13.8
Twice annually.....	20	30.9
Three times annually.....	5	5.3
Four times annually.....	9	9.6
Monthly.....	2	2.1
Irregularly.....	5	5.3
Total.....	94	100.0

The General Electric Company rates all hourly paid employees on a 6-month basis.<sup>2</sup> Dr. Marion Bills has reported that "since about 1926 our supervisors have rated their employees twice a year."<sup>3</sup>

In deciding how often employees should be rated it is desirable to consider probationary employees as belonging in a separate category. Many firms provide that for a specified time (usually ranging from 30 to 90 days) new employees are considered to be on probation, and it is common to find such arrangements incorporated into collective bargaining agreements. Since the purpose of a probationary period is to provide a trial interval during which the employee is expected to demonstrate whether or not he can satisfactorily meet the requirements of his

<sup>1</sup> "Plans for Rating Employees," *op. cit.*, p. 14.

<sup>2</sup> "A Description of the Hourly and Salary Rating Plans," p. 1, Appliance and Merchandise Department, General Electric Company, Jan. 27, 1939.

<sup>3</sup> "Office Personnel Practices," p. 27, Office Management Series No. 79, American Management Association, New York, 1937.



job, it is logical for management to rate new employees just prior to the expiration of the probationary period. Sometimes, where the time interval is long enough, two ratings may be regarded as warranted—one at the half-way point and one near the end.

Associated with the problem of how frequently employees should be rated is the question of whether employees should be rated all at one time or on a staggered basis. Those who prefer that ratings be made on a staggered basis often recommend that each employee be rated on the anniversary date of his employment (and at regular intervals in between anniversary dates where ratings are more frequent than once a year). It is claimed that this practice makes the task of rating easier for supervisors, especially when they are responsible for large groups of people, and, in addition, that the anniversary date of employment is more meaningful than some arbitrarily selected date. Those preferring to rate all employees at the one time feel that in this way there is less likelihood that the results of the ratings will be differentially affected by day-to-day alterations in the moods, attitudes, and personal likes or dislikes of the raters. It is also felt that better control can be exercised over the rating process in that supervisors can be required to rate all employees on each trait in the rating scale instead of rating each employee on all traits. The advantage of rating all employees on the first trait, then on the second, and so on, is that there is less of an opportunity for unintentional bias to carry over from trait to trait in the case of any individual employee.<sup>1</sup>

Generally speaking, the practice seems to be about evenly divided between making all ratings at one time and dis-

<sup>1</sup> It is recognized, of course, that there is a vast difference between unintentional bias and deliberate, planned distortion of ratings. A supervisor who desires to make a rating unjustifiably high or low will not be prevented from doing so by any statistical or procedural device that may be introduced into the rating situation. Review of ratings by others in the managerial hierarchy, discussion of ratings with employees, and granting employees the right to take up grievances over ratings are the best methods of controlling deliberate perversion of the ratings.

tributing them over the year.<sup>1</sup> In highly seasonal industries, such as canning, it may be preferable to rate during the slack season, since during that period only permanent employees will be considered and supervision will have time to perform the rating function adequately. This also applies to many department stores.

In the final analysis, the decision as to whether to rate on an all-at-once or staggered basis will depend largely upon the nature of the business and the preferences of the management (including the raters). Good results can be, and have been, achieved by both methods.

### Review and Scoring of Ratings

It is common practice in concerns using merit-rating plans to have each rating reviewed by someone other than the rater. Such review is valuable as a device to control, insofar as possible, the effects of favoritism or lack of understanding of the plan on the part of the rater. Usually ratings are reviewed by the immediate supervisor of the rater or by some other line executive, although in some cases a representative of the personnel department will perform that function. In some concerns the person reviewing the rating has the authority to change it, in other cases he merely notes his disagreement on the form. In order to sustain the authority and prestige of the rater and assist in building a strong organization it would appear desirable to have the individual reviewing the rating meet with the original rater and discuss any apparent discrepancies that may have been noted. As the result of such discussion the rating might or might not be changed.

In small organizations the rater will also sometimes score the form. However, in large concerns this clerical detail is frequently handled by the personnel department. It does not appear to matter too much who scores the form so long as the score of any individual is not permitted to

<sup>1</sup> MARY HARPER WORTHAM, "Rating of Supervisors," California Institute of Technology, Pasadena, Calif., p. 26, 1944.

become common knowledge and the score does not influence the rater the next time the employee is rated.

### Should Ratings Be Discussed with Employees?

One of the most hotly contested points in connection with merit rating is whether or not the rater should discuss the employee's rating with him. Many industrial-relations and operating executives argue that it is dangerous to show the rating to the employee or discuss it with him since they feel that unnecessary arguments will inevitably result which, in turn, may lead to more serious labor difficulties.

However, others argue that the employee obviously has a right to know what is expected of him and how he is making out on the job. It is maintained that, by careful handling, the discussion of ratings with employees can improve morale in the concern, can head off and clear up latent grievances, can reassure the employee as to where he "stands," and can be a constructive device in motivating the employee by pointing out in what specific ways he can improve his performance.

From a purely theoretical point of view, almost everyone seems to agree that the rating should be discussed with the employee and that mutual benefits can result. One standard text advises, "The rater should take the ratee into his confidence, show him his ratings, and discuss them with him."<sup>1</sup> On the other hand, the fears of those who advise against discussing ratings with employees are often well founded. Unless the merit-rating plan in use is sound, unless the ratings are carefully and conscientiously made, and unless the rater knows how to interview and prepares carefully for each discussion with the employee, more harm than good may well result.

If the rating plan is unsound, if the traits or items do not apply to the employee, or if the subdivisions of the traits are so vague or numerous that the rater cannot

<sup>1</sup> SCOTT, CLOTHIER, MATHEWSON, and SPRINGEL, "Personnel Management," p. 234, McGraw-Hill Book Company, Inc., New York, 1941.

justify his conclusions, the employee who is being rated will be the first to realize the deficiency or deficiencies and will be rightly critical of the whole program as well as of his own rating. However, if the plan is sound, in view of the type of work performed by the employee, it should not be too difficult to convince him that this is so. In fact, if the plan is sound, the employee will, in most cases, never even question its fairness.

If the rating of the employee, as made by the rater, is unfairly low, naturally the employee will become incensed and will lose confidence in the integrity of the rater and, probably, of the whole program. However, Riegel concludes, after a series of conferences with the representatives of 60 concerns, that, "supervisors will rate . . . employees carefully if they are required to discuss the rating of each employee with him . . ."<sup>1</sup> In practice, the most common problems are not often found to be those involving unfairly low ratings. On the contrary, the major difficulty will probably be that of "stiffening the backbones" of some of the weaker supervisors who will tend to rate high in undeserving cases in order to avoid the necessity of discussing a low (but justified) rating with an aggressive employee. This can be guarded against partly by a careful review of the ratings by someone higher in authority than the rater.

Probably the greatest difficulty encountered in the discussion of ratings with employees lies in the mechanics of handling the interview. All too often, the supervisor will end up by losing his temper or, through other types of inept handling, will leave the employee with a strong feeling of resentment. The comments of one concern clearly express some of the problems associated with the interview.

Too much emphasis cannot be placed on the importance of the preparation which the executive makes for the rating interview. An interview, ill prepared, thoughtlessly given, can do far more

<sup>1</sup> JOHN W. RIEGEL, *Wage "Determination,"* p. 104, Bureau of Industrial Relations, University of Michigan, 1937.

damage than no interview at all. The executive must anticipate how the employee may react to the rating, the questions he will ask, the things he may be upset about. The executive must plan the interview so that the employee leaves it with his self-respect intact and with the desire to improve. The employee should have learned more about the possibilities of his job. His belief in the fairness of management should be increased, and his relationship with the executive should be one of greater understanding.<sup>1</sup>

### Right of Appeal

No matter how fair the supervisor is in making his ratings, no matter how reasonable the employees may be, sooner or later some supervisor will be unable to convince some employee that he has been fairly and adequately rated. At this point the question arises: Must the employee accept the rating, or may he appeal it? In essence, at this point the employee has a grievance and his possible course of action will depend upon the type of grievance procedure that is in existence in the concern and the matters that can be taken up as grievances under the procedure. In many unionized concerns the employee would be able to take up the results of his merit rating as a grievance and in some he would even be able to take the matter to arbitration. For several years classified employees in the employ of the federal government have been able to appeal their ratings before a three-member board of appeal.

If ratings are directly used in making wage or salary adjustments, promotions, layoffs or discharges, there seems to be no valid reason why employees should not have the right to appeal judgments that they believe to have been unfair. Certainly a worker who feels that his supervisor has rated him too low has a legitimate complaint which can and should be handled with the same care, promptness and decision as any other grievance.<sup>2</sup>

<sup>1</sup> "Plans for Rating Employees," *op. cit.*, p. 17.

<sup>2</sup> "Employee Rating," *op. cit.*, p. 22.

### Training Raters

The success of a merit-rating plan hinges primarily on the following four points: (1) developing a sound plan, (2) gaining top-management, supervisory, and employee support for it; (3) making fair and equitable ratings; (4) using the ratings constructively.

To a certain extent these points are interrelated. However, the one important item that has not as yet been discussed is the necessity of training the raters in order that the objectives specified under points 3 and 4 above may be realized. Actually, as was pointed out at the beginning of this chapter, much of this training is done when the plan is developed in conjunction with the prospective raters. At this time they learn the purpose of the plan, its strengths and weaknesses, some of the statistical considerations involved, and the uses to which the results should be put. To conclude the training it is desirable that practice ratings be performed so that all may understand the mechanics of the plan and so that the results that are desired are quite clear in the minds of the raters.

**Training in the Mechanics of Rating.**—"Individuals responsible for the training of raters generally agree that personal contact training methods are more successful than less direct procedures like the use of rating manuals or cover letters. This is because of the fact that personal contact training methods permit discussions of salient points, questions, etc., which lead to the elimination of misconceptions."<sup>1</sup> Such personal contact training might be performed on an individual basis, as occurs when a personnel department representative sits down with a supervisor when he first rates his employees, or on a group basis, as is usually the case when small conference groups of raters are brought together to discuss the plan and to practice the actual process of rating.

As a part of this training program and in conjunction

<sup>1</sup> R. S. DRIVER, *Training As a Means of Improving Employee Performance Rating, Personnel*, vol. 18, No. 6, p. 366, May, 1942.

## HOW TO RATE EMPLOYEES

## Instructions for Supervisors

1. Study the rating sheet carefully so that you understand exactly on what you are going to rate your men. Read instructions on sheet.
2. If you have several persons on the same job or occupation or class of work, start with such a job. For example, suppose you have eight arc welders but you consider there is a difference in the class of work the men are called on to do or even can do. Suppose you have rated the job and concluded you had Class A and Class C arc welding, with four men in each class. How do the Class A welders compare? By rating the four men, it is possible to get a better picture of individual performances.
3. Select one of the Class A welders: (a) Take his rating sheet and rate him carefully on each one of the six factors, placing an X in the columns which you believe best describe him; (b) start at the right hand with the lowest degree for each factor and read across to the left until you find the description you think best fits the man; (c) be fair and do not jump at conclusions; (d) weigh the individual's performance as to quality of work, quantity, adaptability, job knowledge, dependability, attitude; (e) make only one check mark on each of the six factors.
4. When you have rated this man, take each of the other three Class A welders and do the same thing. Use the first rating as a yardstick and compare these men with it. Ask yourself should each man be rated the same, higher, or lower than the first man, on quality, for example, and if more or less, which description best fits.
5. Take the Class C welders and do the same thing. Remember, in rating men, you are rating the performance of the individual on his own job. On this basis, a man may qualify for group 1 or 2 regardless of whether his job is skilled, semiskilled, or unskilled. For example, you may have a group 1 man in your Class A arc welders, and you may have a group 1 man in your Class C arc welders. This does not mean the abilities of both men are the same or even comparable, or that both should receive the same rate. It simply means each of the two men has the highest individual rating on his own job.
6. When you have rated all men in your department (calling in assistant foremen if there are any), check over all your ratings to see that you have been consistent. The best way to do this is to make up a simple summary for all your men such as is shown on page 70.
7. Next, apply the number of points to each employee rating. It is optional whether the foreman applies the point ratings and adds these up or whether it is done by someone else, as long as the rating data are kept confidential. Where the department is small, it is preferable to have the foreman actually work up the ratings. Foreman should not, however, refer to the point values when rating employees.
8. Finally, each department foreman should have an opportunity to sit down with his superior and review all the ratings of his men. There are two reasons for this: First, to make sure that all foremen have the same idea or standard as to what each degree on the several factors means, so they will all be rating their men on the same basis; second, to give the foreman a chance to discuss his men with top management.

FIG. 16.

with the conferences or individual instruction an instructional manual for raters might well be prepared. Usually such a manual illustrates the forms that are used and contains one or two sample ratings as well as detailed but concise instructions on how to rate, reiterating the more lengthy material covered by the personal contact method. Figure 16 illustrates rating instructions for supervision designed to accompany the National Metal Trades Association's merit-rating plan.<sup>1</sup>

**Training in the Use of Ratings.**—It is important that all raters have a uniform understanding of the uses to which ratings are to be put within the organization in question. As in the case of the mechanics of rating, this understanding partly results from participation in the development of the program. However, the average supervisor may well agree in principle and may understand in theory what should be done, but may nevertheless hesitate actually to use the ratings not so much because he does not know the purposes for which they should be used but primarily because he is not sure of exactly how to go about using them.

The personal contact type of training is ideally suited to overcoming this problem. By means of group conferences or by having a personnel department representative work with the supervisor on an individual basis, raters can receive practice in reviewing ratings, judging their import, and in constructively praising the successful employee or in assisting the less successful employee to improve his performance. Practice in controlled situations of this type will soon prepare the average supervisor for constructively using the ratings as was planned and will at the same time most effectively convince him that the program is practical and of value to him and to his employees.

<sup>1</sup> A. L. KRESS, *How to Rate Jobs and Men, Factory Management and Maintenance*, vol. 97, No. 10, p. 69, October, 1939.





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